



# Bicester Office Park

## Environmental Impact Assessment

### Volume 2: Technical Appendices

Prepared for:  
Scenic Land Developments Limited

Date:  
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# ES Volume II: Technical Appendices

## Appendix 2.1: EIA Scoping Report

# Bicester Office Park

## EIA Scoping Report

Prepared for  
 Scenic Land Developments Limited  
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## INTRODUCTION

### Site Location and Context

1. Scenic Land Developments Limited (hereafter referred to as the 'Applicant') is seeking outline planning permission for the construction of a commercial scheme (hereafter referred to as the 'Proposed Development'). The site, in Cherwell District Council (CDC) is approximately 13.1 hectares (ha) and is centred on National Grid Reference 457910,221631. It is bounded by a Tesco foodstore and farmland to the north, farmland to the east, the A41 (Oxford Road) to the west and Bicester Avenue Garden Centre and more fields to the south.
2. Further east of the site is a railway line, and to the south a sewage treatments works. Langford Brook is located further southeast of the site and it meanders to the north of the sewage treatment works before cutting beneath the railway line and heading northwards towards the village of Langford. West of the site and the A41 is the Kingsmere Residential Estate (a phased development of 726 homes under construction) as well as Premier Inn hotel and the Brewers Fayre Pub and Restaurant. North of the Tesco foodstore is Bicester Village, an outlet shopping centre. Chesterton is located approximately 2 kilometres (km) to the west and Langford Village is located approximately 1km to the east of the site. Graven Wood, located on Graven Hill is situated approximately 1.5km to the southwest.
3. The location of Bicester is shown in Figure 1. Figure 2 shows the planning application site boundary.
4. Given the scale of this development, the location of the Site and the potential for environmental effects, the Applicant is submitting an Environmental Statement (ES) alongside the outline planning application. Trium Environmental Consulting LLP (Trium) has been commissioned to undertake the Environmental Impact Assessment (EIA) on behalf of the Applicant in line with the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended 2015) (hereafter referred to as the 'EIA Regulations') and other relevant EIA guidance.

### THE PROPOSED DEVELOPMENT

5. The Proposed Development, includes the construction of a business park comprising between 55,000 and 60,000m<sup>2</sup> office use (B1), parking for approximately 2,000 cars, associated highway, infrastructure and earthworks. The office park will be made up of differently sized buildings which will vary in height between 2 and 4 storeys and located within a landscaping space. The site will be accessed from Lakeview Drive via the signalled controlled junction with the A41 Oxford Road.

### PLANNING HISTORY

6. Part of the site was granted outline planning permission in 2010 for the construction of a 60,000m<sup>2</sup> B1 Business Park comprising 53,000m<sup>2</sup> of B1 office space and a 7,000m<sup>2</sup> C1 hotel, served by approximately 1,837 car parking spaces (Planning Ref: 07/01106-OUT). This outline planning application was accompanied by an ES.
7. Detailed planning consent was subsequently granted on part of the site in November 2013 for the construction of a Tesco foodstore of 8,135m<sup>2</sup> and petrol filling station on part of the consented Business Park site (Planning Ref: 12/01193/F). The planning application in relation to the proposed Tesco foodstore was supported by a Transport Assessment which considered the effect of the Tesco foodstore on the highway network local to the site. The Tesco foodstore has been constructed and opened in April 2016. The development of the Tesco foodstore comprised the relocation and expansion of a previous Tesco foodstore which was situated adjacent to Bicester Village and the development was linked to an extension to Bicester Village, known as Bicester Village Phase 4 which is currently under construction and scheduled to be completed in October 2017 (See Table 1).

Figure 1: Site Location Map



### The Purpose of Scoping in the EIA Process

8. EIA Scoping forms one of the first stages of the EIA process. It refers to the activity of identifying the environmental 'topics' that should be considered within the EIA. In addition, EIA Scoping allows for the early identification of the receptors that may be affected or impacted by a new development. Through consideration of environmental 'topics' and potential receptors (both existing and introduced as a result of a new development), EIA Scoping initiates the process of defining the potential for significant impacts, which in turn results in the identification of the issues to be addressed in the EIA.
9. Regulation 13 of the EIA Regulations allows for an Applicant to ask the Local Planning Authority, in this case CDC (who in turn seek the opinion of other relevant Statutory Consultees), to state in writing their opinion as to the scope of the EIA. This report constitutes a request for a Scoping Opinion under Regulation 13 of the EIA Regulations.
10. The EIA will be undertaken in accordance with the requirement of the 2011 EIA Regulations. It is recognised that on 16th May 2017, the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 come into force, however, the Transposition Note that accompanies the revised Regulations state that where an EIA Scoping Opinion is sought from a Local Authority prior to 16th May 2017, the 2011 EIA Regulations will be the overriding relevant legislation.

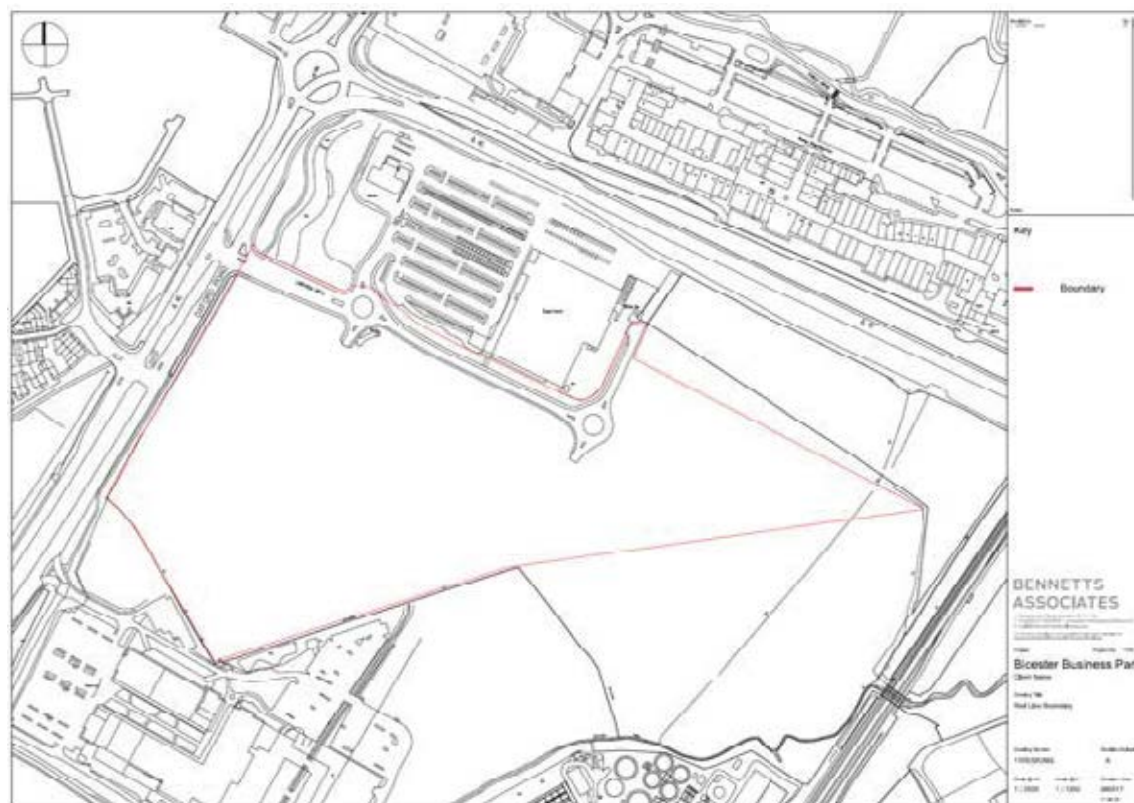
### Structure of the Scoping Report

11. The remainder of the Scoping Report presents the following:
  - An overview of the existing Site and potential sensitive receptors;
  - An overview of the Proposed Development;
  - Key legislative and planning policy documents;
  - EIA Methodology;
  - A preliminary list of EIA consultees;
  - The environmental 'topics' to be addressed within the EIA;
  - The proposed structure of the ES; and
  - Summary and conclusions to the EIA Scoping Report

### OVERVIEW OF THE EXISTING SITE AND SENSITIVE RECEPTORS

12. The land encompassing the site is currently used for agricultural purposes (Grade 4). The site is generally flat, with a slight drop to the south and east. A drainage channel runs north / south, from the access road to the southern boundary, along the north of the drainage channel is an area used for material storage. This area had plastic and concrete pipework, gravel and wood chippings. Two heaps of wood, comprising tree branches and timber up to 3m high, are in the south of the site. The site is accessed from Lakeview Drive via the signalled controlled junction with the A41 Oxford Road. Bicester village is located to the south and the site is a 10-minute walk from Bicester Town Centre. Bicester Village is located to the south and the site is a 10-minute walk from Bicester Town Centre.
13. Bicester currently extends as far south as the A4030 Middleton Stoney Road in the west and the A41 Boundary Way in the east. The two roads meet in central south Bicester at a large four arm roundabout junction, known as the "Esso" roundabout junction. Here, the A41(east Boundary Way) meets the A41 (south) where it is known as Oxford Road.
14. On the northern side of the A41 Boundary Way, between the site and the town centre is Bicester Village, a factory outlet shopping centre which attracts a large proportion of its visitors from outside Bicester. To the west of Bicester Village, on land to the north east of the Esso Roundabout is a new Tesco which has been operational since April 2016. The Bicester Avenue Garden centre and the Tesco foodstore are the closest buildings to the site and are generally 2 storeys in height. There are established links for non-car users between the supermarket, Bicester Village, the town centre and railway stations.

Figure 2: Application Site



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15. Part of the site is identified by CDC as land for an Approved Employment Site and part of the site is identified as land for a New Employment site.
16. Traffic noise from the M40 dual carriageway to the west of the site and the Tesco foodstore to the north of the site are likely to be the dominant noise sources with the operational railway to the east of the site being secondary.
17. The majority of the land within the red line is designated as zone 1 –low risk of flooding – with a small area on the boundary of zone 1 and zone 2. This is due to the proximity of the Langford Brook located east of the site.

### Potential Environmental Sensitivities / Sensitive Receptors

18. When undertaking an EIA it is important to understand which receptors will be considered as part of the assessment. Initial studies and consultations have revealed the following potential sensitive receptors to the Proposed Development (as shown in Figure 2):
  - Key short, medium and long-distance views;
  - Bicester Conservation Area approximately 0.35km north of the site including listed buildings within the conservation area such as the Grade II\* Old Priory and attached garden walls in Priory Lane north east of the site and the Grade II\* listed Old Vicarage located in Church Street also north east of the site;
  - Ecology – hedgerows and protected species (and associated habitat (if present));
  - Archaeological resources;
  - Although the site itself does not fall within an Air Quality Management Area (AQMA), Bicester Town Centre as declared an AQMA;
  - Residential Property – Kingsmere Residential Estate, isolated farm properties to the east of the railway line; further residential areas to the north at The Acorn Public House, and beyond at Middleton Stoney Road;
  - Commercial Property – Bicester Village Retail Park, Bicester Avenue Garden Centre; Tesco foodstore, Sewage Treatment Works
  - Water Resources – Langford Brook located east of the site and two tributary streams, Pingle Stream and Town Brook, north of the site;
  - The site location adjacent to Flood Zone 2;
  - Pedestrians, cyclists and road users within proximity of the site; and
  - Public transport.

## KEY LEGISLATIVE AND PLANNING POLICY DOCUMENTS

### EIA Statutory Requirements and Guidance

19. The ES will be prepared in accordance with legislative requirements and current guidance for EIA, covered by 'statutory requirements'. In particular, the ES will be prepared with due consideration to:
  - The Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended 2015);
  - Preparation of Environmental Statements for Planning Projects that require Environmental Assessment: Good Practice Guide, Department of the Environment (DoE) 1995;
  - Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Impact Assessment, 2004; and
  - Office of the Deputy Prime Minister (ODPM) Environmental Impact Assessment – A Guide to Procedures, 2000.
20. Consideration will also be given to the new Environmental Impact Assessment (EIA) Directive (2014/52/EU) although this currently awaiting formal adoption in the United Kingdom (England and Wales).

### Planning Policy Context

21. Each of the technical chapters contained within the ES will include reference to relevant national, regional and local planning policy, a summary of which is given below.

#### *National Planning Policy and Guidance*

22. The EIA will have regard to the National Planning Policy Framework (NPPF) (2012), which replaces the previous suite of national Planning Policy Statements and Planning Policy Guidance documents.
23. The policies contained within the NPPF articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.
24. It will also take into consideration the national Planning Practice Guidance (PPG).

#### *Local Planning Policy and Guidance*

25. The EIA will consider the Cherwell Local Plan 2011 – 2031, Part 1 Adopted 20 July 2015 (incorporating Policy Bicester 13 re-adopted on 19 December 2016), July 2015, Cherwell District Council, North Oxfordshire which sets out the vision and spatial strategy for Cherwell District.
26. It will also take into account the Bicester Masterplan, Consultation Draft, August 2012, Supplementary Planning Document, which incorporates a detailed set of proposals for connecting the transport and movement, housing, employment, green infrastructure and the town centre actions together. The draft masterplan indicates where and what type of new development is proposed and the strategic linkages between them.

### EIA METHODOLOGY

27. This section outlines the methodology to be used throughout the ES.
28. The EIA will address the direct effects of the Proposed Development in addition to the indirect, cumulative, short, medium and long term, permanent, temporary, beneficial and adverse likely significant effects arising from the Proposed Development. The main mitigation measures envisaged in order to avoid, reduce or remedy significant adverse effects will be described. The concluding chapters will provide a summary of the cumulative and residual effects of the Proposed Development.
29. Each technical chapter of the ES will define the baseline against which the potential significant environmental effects of the Proposed Development will be assessed. The baseline conditions will be

taken as the current (2016) conditions on site i.e. the existing buildings. Where relevant and appropriate, a 'future baseline' scenario will be identified for some ES topics, such as Transport. The transport future baseline considers the conditions when the full Proposed Development is expected to open and may consider other developments and any highway improvements that are considered to have an impact on the study area. Any reference to and inclusion of a future baseline will be fully explained within the relevant ES chapter.

30. Following on from the definition of the baseline conditions, the impact of the Proposed Development will be assessed during the demolition and construction phase and on completion and occupation of the Proposed Development. Mitigation measures will be identified to either eliminate, mitigate or reduce adverse effects and following the incorporation of mitigation measures, the significance of any remaining residual effects will be defined by applying a standard set of significance criteria. Interactions between effects will then be assessed (see below for further details).

### Significance Criteria

31. For each technical chapter, the significance of effects will be evaluated with reference to definitive standards, accepted criteria and legislation where available. Where it has not been possible to quantify effects, qualitative assessments will be carried out, based on expert opinion and professional judgement. Where uncertainty exists, this will be noted in the relevant chapter of the ES.
32. Specific significance criteria for each technical discipline will be developed, giving due regard to the following:
- Extent and magnitude of the impact;
  - Effect duration (whether short, medium or long-term);
  - Effect nature (whether direct, indirect, reversible or irreversible);
  - Whether the effect occurs in isolation, is cumulative or interactive;
  - Performance against any relevant environmental quality standards;
  - Sensitivity of the receptor; and
  - Compatibility with environmental policies.
33. In order to provide a consistent approach across the different technical disciplines addressed within the ES, the following terminology will be used throughout the ES to define residual effects (i.e. the effect post the application of any required additional mitigation measures):
- Adverse – Detrimental or negative effects to an environmental resource or receptor; or
  - Negligible – Imperceptible effects to an environmental resource or receptor; or
  - Beneficial – Advantageous or positive effect to an environmental resource or receptor.
34. Where adverse or beneficial effects are identified, these will be assessed against the following scale:
- Minor; or
  - Moderate; or
  - Major.
35. In general, residual effects found to be 'moderate' or 'major' are deemed to be 'significant'. Effects found to be 'minor' are considered to be 'not significant', although they may be a matter of local concern. 'Negligible' effects are considered to be 'not significant' and not a matter of local concern. Each technical chapter of the ES will provide further explanation and definition on the scale of effect significance, i.e. minor through to major. Broadly, short to long-term (temporary) effects will be considered to be those associated with the construction phase and permanent effects will be those associated with the completed operational Proposed Development. Local effects will be defined as those affecting the Site and neighbouring receptors, whilst effects upon receptors in the CDC will be considered to be at a district

level. Effects affecting Oxfordshire will be considered to be at a regional level, whilst effects, which affect different parts of the country, or England as a whole, will be considered to be at a national level.

36. Mitigation measures will then be identified to either eliminate or reduce adverse effects. These will be incorporated into either the design of the Proposed Development; construction commitments or operational or managerial standards/procedures.
37. Where mitigation measures are inherent (e.g. industry standard best practice) this will be outlined up front in the ES Chapter and included within the assessment of effects.

### Environmental Design and Management Measures

38. Throughout the ES, where applicable, the way that potential environmental effects have been or will be avoided, prevented, reduced or offset through design and / or management measures will be described. These are measures that are inherent in the design and construction of the Proposed Development and include measures such as the implementation of an Environmental Management Plan (CEMP). Proposed environmental enhancements will also be described, where applicable.
39. These design measures will be considered prior to the assessment of effects to avoid considering assessment scenarios that are unrealistic in practice i.e. do not take account of such measures even though they are likely to be standard practice. These will then be followed through the assessment to ensure that realistic likely environmental effects are identified.

### Cumulative Effect Assessment

40. In accordance with the EIA Regulations, the EIA will give consideration to 'cumulative effects'. By definition these are effects that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the Proposed Development. For the cumulative assessment, two types of effect will be considered:
- The combined effect of individual impacts, for example noise, airborne dust or traffic on a single receptor; and
  - The combined effects of nearby consented or under construction development schemes, which may, on an individual basis be insignificant but, cumulatively, have a likely significant effect.
41. An assessment of the combined effects of individual impacts will be undertaken and presented within the 'Effect Interactions' Chapter of the ES. The combined effects of nearby consented or under construction development schemes will be presented in each technical assessment.
42. With regard to the combined effects of nearby consented schemes, in order to ascertain if there were any schemes in the vicinity that could potentially lead to cumulative environmental effects a search of the local planning registers was undertaken with the following criteria:
- Developments with planning permission (or with a resolution to grant consent), those under construction and those with site allocation status;
  - Development located within an approximate 4km radius of the Site; and
  - Developments resulting in an increase of more than 10,000m<sup>2</sup> gross external area (GEA) in floor area (or over 50 residential units).
43. Bicester Village Phase 4, although, under the 10,000m<sup>2</sup> criteria has also been included due to its proximity to the site. Table 1 lists the proposed cumulative scheme and Figure 1 shows their approximate locations.



Table 1: Proposed Cumulative Schemes for Assessment

	Site	Proposal / Description	Status	Approximate distance from site
1	SE Bicester Extension	Site Allocation – Bicester 12: A mixed use site for employment and residential development to the east of the ring road to the south east of Bicester for 1,500 homes	Site Allocation	5km
2	NW Bicester Extension	Site Allocation – Bicester 1: A new zero carbon(i) mixed use development including 6,000 homes will be developed on land identified at North West Bicester.	Site Allocation	2.9km
3	Kingsmere Residential Estate	Site Allocation – Bicester 3: A development of 726 homes with associated services, facilities and other infrastructure with contributions toward community facilities, education, health, and open space. The development area is 29ha.	Site Allocation	700m
4	Bicester Village Phase 4	5,181m <sup>2</sup> GIA of retail floorspace and 147 car parking spaces	Permission granted November 2016	200m
5	Bicester Gateway Retail	Outline application for 4 no. Class A1 units (7,840m <sup>2</sup> GIA); 1 Class A3 unit (435m <sup>2</sup> GIA); and 1 Class D2 unit (967m <sup>2</sup> GIA) with car parking area (345 spaces)	Resolution to grant at April 13 <sup>th</sup> committee.	0.8km
6	Wretchwick Green, Wretchwick Way, Bicester	Outline application for up to 1,500 new dwellings; up to 18ha of employment land (B1 / B8 use); a local centre; a new primary school; and landscaping and infrastructure works	Determination deadline was 28 September 2016, decision is outstanding due to holding objections	5km
7	Graven Hill	Future phases in relation to reserved matters approval (15/02159/OUT) 2,100 homes	RMA approved, NMA to increase GIA figures was permitted March 2017.	3.7km
8	Gateway Office Park	Phase 1 comprising Class B1 employment buildings (up to 14,972m <sup>2</sup> GEA); a hotel (up to 149 beds); and associated infrastructure and car parking.	Resolution to grant at April 13 <sup>th</sup> committee.	0.8km

### Consideration of Climate Change within the EIA

44. The key climate projections for the UK (UKCP09) are that:
- Summers will become hotter and drier;
  - Winters will become milder and wetter;
  - Soils will become drier on average;
  - Snowfall and the number of very cold days will decrease;
  - Sea levels will rise; and
  - Storms, heavy and extreme rainfall, and extreme winds will become more frequent.
45. The climate change projections and climate change impacts, adaptation and mitigation measures will be considered within the appropriate sections of the ES, and other supporting planning documents.
46. During construction, the main measures to mitigate climate change will be considered in terms of reducing carbon dioxide (CO<sub>2</sub>) emissions from equipment, and reducing, reusing and recycling site waste where possible. This will be discussed in the 'Construction' chapter of the ES. For design related construction impacts, such as the choice of building materials, this will be considered throughout the design process to reduce its impact on climate change.
47. For the operational phase, the potential for the Proposed Development to adapt to and mitigate climate change will predominantly relate to reducing pollutant emissions to air through reducing the need to travel (especially by car), reducing the amount of pollutant emissions from any proposed energy use, reducing the volume of water usage, and reducing the potential impacts from flood risk. Ultimately, climate change as a result of the operation of a Proposed Development is detailed within Cherwell's Low Carbon Environmental Strategy highlights the common need to improve energy efficiency, reduce carbon emissions, encourage the take-up of low carbon and renewable energy technologies, and reduce the need to travel and provide good access to public and other sustainable modes of transport. It notes the need to conserve water, to minimise flood risk, and to be resilient to the impacts of climate change. Cherwell also have a long term vision to be carbon neutral as set out in the District's Sustainable Communities Strategy published in 2009.
48. To inform this process, a Transport Assessment and Flood Risk Assessment will be submitted in support of the outline planning application.

### EIA CONSULTATION

49. The process of consultation is important to the development of a comprehensive and balanced ES. Views of the interested parties serve to focus the environmental studies and to identify specific issues that require further investigation.
50. Consultees involved in the evolution of the design of the Proposed Development and preliminary assessment of environmental effects will include, but are not limited to:
- Cherwell District Council;
  - Oxfordshire County Council (OCC);
  - Environment Agency (EA);
  - Historic England (HE);
  - Natural England (NE);
  - Thames Water Utilities Limited (TWUL); and
  - Neighbourhood / residents associations.

51. Consultation is an ongoing process and will be fed back into the design of the Proposed Development. A summary of the key consultation responses received from consultees which are relevant to the EIA process will be included within the ES.

## ENVIRONMENTAL TOPICS TO BE ADDRESSED WITHIN THE EIA

### Introduction

52. The EIA and associated technical studies will reflect current guidelines and relevant legislation and will be carried out in accordance with statutory guidance, including the requirements for the contents of an ES. For the EIA to be an effective decision-making tool, the ES needs to focus on the main or *likely significant environmental effects*, within a range of topics. These issues have been identified through a review of existing information, baseline studies and preliminary review of the emerging Proposed Development.
53. The EIA will consider the potential significant effects associated with the following environmental 'topics':
- Socio-economics;
  - Traffic and Transportation;
  - Noise and Vibration;
  - Air Quality;
  - Buried Heritage (Archaeology) and Built Heritage;
  - Ecology; and
  - Landscape and Visual Impact Assessment.
54. The following sub-sections of this Scoping Report provide details on each of the above environmental 'topics', specifically, the works proposed to fulfil the requirements of the EIA process. In addition to the above, the following chapters will be provided as part of the ES:
- Introduction to the Environmental Statement;
  - EIA Methodology (see below for further details);
  - Alternative and Design Evolution (including the 'Do Nothing Scenario', 'Alternative Sites' and 'Alternative Designs');
  - The Proposed Development (including information on drainage infrastructure and flood risk);
  - Construction;
  - Effect Interactions; and
  - Residual Effects and Conclusions.

### Alternatives Assessment

55. The EIA process provides an opportunity to consider alternative development options with their respective environmental effects before a final decision is taken on the design. In accordance with the EIA Regulations and statutory guidance, the ES will describe those alternatives that were considered by the Applicant, project team and architects, including:
- 'Do nothing scenario' – the consequences of no redevelopment taking place on the site;
  - 'Alternative sites' – the rationale behind choosing the site. It will be outlined that alternative sites have not been considered by the Applicant as there are very few sites suitable for development in the area which will meet all the requirements of the Applicant's Development Brief; and
  - 'Alternative designs' – the ES will summarise the evolution of the design of the Proposed Development; the modifications which have taken place to date and the environmental considerations which have led to those modifications. A summary of the main alternatives

considered, such as alternative use combinations, and massing will be presented together with a summary justification for the final design.

### Construction

56. The ES will provide details of an indicative construction programme together with proposed construction activities and methods, and their anticipated duration. This is commensurate with the outline nature of the Proposed Development. Information will be provided on, but not limited to site preparation and construction, including: site access and egress; materials and waste management; land or soil remediation and working hours. Details of any assumptions made will be provided.
57. Estimates of the quantities of materials to be used throughout the construction phase will be considered, and an estimate of the peak periods of daily heavy goods vehicle (HGV) movements will be provided.
58. The ES will define and assess the potential effects of a reasonable worst-case scenario. The peak period or level of activity will be assessed in terms of traffic, noise and air quality effects. The peak period will be defined on the basis of the maximum number of HGV movements and an indication of the plant and equipment location on-site in relation to the excavation and construction boundary.
59. The Construction ES Chapter will present the broad content of a Construction Environmental Management Plan (CEMP). The mitigation measures identified as a result of the site preparation, excavation and construction assessment will be presented within the ES for future inclusion within a CEMP, to be agreed with CDC as part of any future detailed reserved matters application(s) or planning condition(s). It is likely that specific mitigation measures will be defined to reduce effects specifically on or arising from:
- Site preparation, excavation and construction traffic and workforce presence on-site;
  - Working close to neighbouring boundaries;
  - Site access and egress (including mitigation for any loss of public right of way and road closures);
  - Noise and vibration;
  - Soil removal and land contamination;
  - Water usage and site drainage;
  - Energy usage and monitoring;
  - Emission of dust and other pollutants; and
  - Waste generation, management and disposal.
60. The mitigation measures and outline CEMP will take account of the requirements of the London Councils' guidance on 'The Control of Dust and Emissions from Construction and Demolition' (2006).

### Socio-economics

61. The Proposed Development will create between 55,000 and 60,000m<sup>2</sup> gross internal area of new commercial floor space (B1a office) and will make a major contribution to the local and wider sub-regional economies. Once it is fully occupied, Bicester Office Park will be a key employment hub, generating significant gross value added to the local and sub-regional economies.
62. The Proposed Development is expected to generate a range of socio-economic effects, some of which would be temporary, whilst others would be long-term and permanent.

#### Outline Scope of Assessment

63. The temporary socio-economic effects will include:
- Temporary employment created during the construction phase of the redevelopment;
  - Gross value added to the local economy by the temporary construction employment; and

- Construction training opportunities.
64. The permanent socio-economic effects will include:
- Employment generation, including direct jobs created on site and associated indirect/induced employment created through multiplier effects;
  - Gross value added to the local economy by the net additional employment created;
  - Training and skills development opportunities;
  - Additional local spending by office workers; and
  - The provision of amenity space for office users.
65. The socio-economic assessment, undertaken by Indigo Planning, will include a high-level review of the relevant planning, economic development and regeneration policies. The purpose of the policy review will be to understand the key strategic regeneration outcomes sought for the local area. The assessment will consider whether the socio-economic impacts of the Proposed Development are well aligned with the overall direction of policy.
66. The socio-economic assessment will identify and interpret baseline information on a variety of indicators. The socio-economic indicators will be grouped into a number of subject areas that address a broad range of outcomes typically associated with major development proposals. Taken together, these subject areas provide a robust indication of the socio-economic strengths and weaknesses of a local area.
67. The main subject areas to consider will be as follows:
- Population and demographic change;
  - Economic activity;
  - Education and skills;
  - Housing;
  - Health conditions; and
  - Deprivation and poverty
68. Data will be obtained from a variety of sources, including the 2011 Census, the Office for National Statistics, the National Online Manpower Information Service (NOMIS) and the Indices of Multiple Deprivation for 2015 which enable data to be provided at the very small area level.
69. An assessment of effects will be undertaken to assess the impact of the Proposed Development on the baseline conditions. The methodology for assessing socio-economic impacts will follow standard EIA guidance and will entail:
- Consideration of local policy, plans and development constraints;
  - Review of baseline conditions at the Proposed Development Site area, locality and Oxfordshire;
  - Assessment of the likely scale, permanence and significance of effects associated with:
    - o Direct, indirect and induced employment during the construction phase of the scheme; and
    - o Direct, indirect, and induced net employment once the scheme is operational.
  - Identification of avoidance and mitigation measures (if and where relevant) and thus an assessment of the residual effects of the development.
70. Wherever possible the impacts of the socio-economic assessment will be appraised against relevant national standards. Where no standards exist, professional experience and judgement will be applied and justified.

#### *Determination of Significance and Classification of Effects*

71. Policy thresholds and best practice will be used to assess the significance of the effects. In the absence of specific guidance on assigning significance, professional judgement will be used to assess the impact of the Proposed Development on the social and economic baseline. The assessment will aim to be objective and quantify impacts and their effects as far as possible. However, some impacts can only be evaluated on a qualitative basis.
72. Effects will be assessed based on:
- Magnitude of change - this entails consideration of the absolute number of people or businesses affected and the size of area in which impacts will be experienced;
  - Scale of the impact - this entails consideration of the relative magnitude of each effect in its relevant context (for example, the impacts on local employment will be considered in the context of the overall size of the local labour market); and
  - Scope for adjustment or mitigation - the assessment will be concerned in part with economies. These adjust themselves continually to changes in supply and demand, and the scope for the changes brought about by the Proposed Development to be accommodated by market adjustment will therefore be a criterion in assessing significance.

#### **Traffic and Transportation**

##### *Summary Baseline Context*

73. The site is accessed from Lakeview Drive via the signalled controlled junction with the A41 Oxford Road. The A41 Oxford Road runs on a broadly north-south alignment and connects north to Bicester town and south to the M40.
74. At the north-east corner of the site, the A41 Oxford Road connects with the A41 at a junction known as the Esso roundabout. The A41 links east from The Esso roundabout towards Aylesbury. North of the A41 junction, Oxford Road forms a junction with Pingle Drive which provides access to the Bicester Village shopping park.
75. The consented development proposals for Bicester Village Phase 4 and the constructed Tesco foodstore included a package of highway works which are currently under construction and are expected to be completed by September 2017. The highway works include improvements to the Oxford Road junctions with Pingle Drive, Esso roundabout and Lakeview Drive.
76. Local Pedestrian Network - Footways are provided along both sides of the site access as well as the eastern side of the A41, Oxford Road. These connect with the existing pedestrian network on Oxford Road and Pringle Drive offering access to the residential developments to the north as well as Bicester Village to the north east.
77. Local Cycle Network - The site is well located with regard to National Cycle Network Route 51, a signed route along Wendlebury Road and Pingle Drive in the immediate vicinity of the site. This route connects the area to Oxford to the south and Bedford via Bletchley to the north east.
78. Local Bus Network - The nearest bus stops to the site are located approximately 500 metres to the north on Oxford Road and are served by the S5 and X5 services. The S5 operates every 15 minutes Monday to Friday and every 30 minutes on Saturdays and Sundays between Oxford City Centre and Launton, as well as the Bicester Park & Ride facility. The X5 operates twice an hour on weekdays and hourly on weekends between Cambridge Parkside Bus Station and Oxford City Centre via Milton Keynes Railway Station.
79. A further bus stop is located on Pringle Drive approximately 800 metres to the north east and is served by the Bicester Village Shuttle operating towards Bicester North Railway Station.
80. Local Rail Network - The nearest station is Bicester Village Railway Station located approximately 1.4 kilometres to the north east of the site. Bicester Village Station is located on the Oxford to London Marylebone line with services operating in each direction every 30 minutes. Bicester North Railway

Station is located approximately 1.8 kilometres to the north of the site and offers connections to London Marylebone, Banbury and Birmingham Moor Street and Snow Hill. Services run up to twice per hour in

#### Outline Scope of Assessment

81. The Transport Assessment, carried out by Motion, will consider the effect of the development proposals on the highway network local to the site.
82. It is proposed that the following scope of junctions are considered within the scope of the Transport Assessment and included with junction capacity modelling:
  - Oxford Road/ Middleton Stoney Road;
  - Oxford Road / Pingle Drive roundabout;
  - Oxford Road / A41 signalised roundabout;
  - Oxford Road (A41) / Lakeview Drive signalised junction (site access junction);
  - Oxford Road (A41) / Kingsmere signalised junction; and,
  - Oxford Road (A41)/ Vendee Drive
83. The Traffic and Transport Assessment will consider a future assessment year of 2022. Forecast traffic for the future assessment year of 2022 will be determined by applying traffic growth factors derived from TEMPRO. In addition to TEMPRO growth factors, the future year assessment will consider committed developments in the vicinity of the site. The committed developments considered as part of the assessment are listed in Table 1.
84. Expected trip generation and distribution of trips associated with each of the committed developments will be extracted from the Transport Assessments submitted alongside each of the approved planning applications.
85. It is noted that the Kingsmere Residential Estate is part built out and therefore traffic flows associated with part of the development will already be on the highway network and included within the surveyed traffic flows. For the purpose of assessing outstanding consented development, consideration will be given to the remaining elements of the Kingsmere Residential Estate which are yet to be constructed.
86. Traffic growth factors derived from TEMPRO include assessment of traffic growth as a result of expected committed developments in the local area. To this extent, applying by TEMPRO growth factors and including traffic associated identified committed developments to baseline traffic flows will result in double-counting of likely traffic growth on the highway network and over-estimate future year traffic flows. On that basis traffic growth factors derived from TEMPRO will be adjusted, on the basis of the consented development proposals being considered separately, in order to minimise the likelihood of double-counting of likely traffic growth.
87. In order to consider the trip attraction of the development proposals the industry standard TRICS database will be used in order to assess the likely vehicle trips associated with the development proposals during the morning and evening peak hours and throughout the day.
88. In order to assess the distribution of vehicle trips on the highway network local to the site, journey to work data from the 2011 Census data will be interrogated to establish the likely origins of employees at the proposed Office Park. Vehicle trips will be routed between census origins to the development, based on online mapping route calculation.
89. As detailed in the IEMA 'Guidance for Environmental Impact Assessment' mode specific significance criteria will be used to assess the environmental effects associated with changes in traffic as a result of the Proposed Development. In accordance with relevant guidance, each of the following environmental effects will be considered:
  - Delay;
  - Severance;

- Amenity, Fear and Intimidation; and
  - Accidents and safety.
90. The potential effects of the Proposed Development will be considered in the following scenarios;
    - Existing baseline year;
    - Do nothing year, future baseline without the development;
    - Do something year, future baseline with the development in place
  91. In accordance with the IEMA guidance consideration will be given to two rules to define the scale and extent of assessment and these are:
    - Rule 1: include highway links where traffic flows will increase by more than 30%, or where the number of HGVs increase by more than 30%;
    - Rule 2; include highway links that are particularly sensitive to the Proposed Development where traffic flows have increased by 10% or more.
  92. The environmental effects of the developments will be judged in terms of its likely effect on service, delay, amenity, fear and intimidation and accidents and safety. The scope of assessment will be considered where there is a 30% increase or greater in traffic flow or where the increase in HGV movements is 30% or greater. Additional extent of highway network will be considered where they are deemed to be sensitive and where the increase in traffic is 10% or more.
  93. Each of the potential environmental effects associated with the Proposed Development will be considered based on the following scale; major adverse, moderate adverse, minor adverse, negligible, minor beneficial, moderate beneficial or major beneficial.

#### Noise and Vibration

##### Summary Baseline Context

94. The current primary noise source at the Site and surrounding area is traffic noise on the local road network, along with existing commercial and retail uses in the vicinity.
95. Noise monitoring will be undertaken at agreed locations to represent the nearest sensitive receptors, likely to be to the west of the site towards the A41 and the east of the site towards the railway line, along with the northern edge of the site in proximity to the Tesco foodstore.

##### Outline Scope of Assessment

96. Potential noise effects may occur at existing residential and commercial uses due to the Proposed Development as a result of:
  - Construction activities;
  - Changes in road traffic flows;
  - Car Parking and other activity associated with the Proposed Development; and
  - Fixed plant associated with the Proposed Development.
97. The site is not subject to any existing sources of vibration that could have amenity implications. Construction is unlikely to take place sufficiently close to residential properties or for a sufficient length of time, as to give rise to vibration that could have amenity or structural implications. The operational development is unlikely to give rise to any vibration that would be measurable beyond the site boundary. It is not proposed, therefore, to undertake any further assessment of vibration.
98. A construction noise assessment will be undertaken based on construction activity, plant use and traffic movement information. Depending on the availability of details of likely construction equipment, some quantitative analysis may be possible, but the focus will be on mitigation measures to be included in the CEMP. Noise levels at receptors will be calculated using BS 5228-1:2009 (and update A1 2014 Part 1

Noise) data and procedures. From the results of the construction noise assessment, preliminary mitigation measures will be advised in line with BS 5228 and CDC planning policy.

99. Noise from the operation of the Proposed Development will be assessed in line with BS 4142:2014 where applicable, along with guidance contained in the World Health Organisation "Guidelines for Community Noise" and Planning Practice Guidance on Noise.
100. Building services noise associated with the operation of the Proposed Development will be assessed in line with BS 4142:2014 and limits recommended such that noise does not exceed the typical LA90 background noise level. The plant on the Proposed Development will be selected and attenuated to achieve these limits during the design development.
101. Noise levels associated with construction traffic and future operational traffic flows will be assessed in line with Calculation of Road Traffic Noise (CRTN) issued by the Department of Transport in 1988. The significance of the impact on road traffic noise levels will be assessed based on a range of relevant guidance including the Design Manual for Roads and Bridges (DMRB) and mitigation measures detailed where necessary.
102. Receptors currently identified at scoping stage include:
  - Kingsmere Residential Estate;
  - Isolated farm properties to the east of the railway line; and
  - Further residential areas to the north at The Acorn Public House, and beyond at Middleton Stoney Road
103. These receptors will be considered within the design development of the Proposed Development and assessed within the Noise Assessment submitted as part of the ES.
104. The Proposed Development has the potential to affect existing noise sensitive properties from increases in road traffic noise due to increased traffic flows generated by the Proposed Development.
105. In addition, during construction, there is potential for noise impacts at noise sensitive properties.
106. The operation of the Proposed Development is unlikely to give rise to any other significant effects, but operational noise from car parking and other commercial activity will be assessed.
107. Where required, mitigation measures will be recommended for both the construction and operational phases. This is likely to amount to measures to be included in the CEMP and any traffic management measures. There is unlikely to be a need for significant mitigation measures and noise impacts from the Proposed Development are expected to be low.

## Air Quality

### Summary Baseline Context

108. CDC monitors concentrations of nitrogen dioxide (NO<sub>2</sub>) using 42 passive diffusion tubes throughout the District. This includes eight locations in Bicester town centre, all within 2 km of the site of Proposed Development. Monitoring data for the year 2015 at these locations indicate that annual mean concentrations of NO<sub>2</sub> are above or just below the objective along Queens Avenue, Field Street and the B4100, while well below the objective elsewhere. Four Air Quality Management Areas (AQMAs) have been declared to date in the District, including one in Bicester town centre, declared for exceedances of the annual mean NO<sub>2</sub> objective (Cherwell District Council, 2016). Current and future air quality conditions at the site of Proposed Development will be determined through detailed dispersion modelling, as described below.

### Outline Scope of Assessment

109. Potential air quality impacts will be considered in relation to the construction and operational phases of the Proposed Development include:
  - Impacts of dust emissions during the construction phase of the Proposed Development;

- Impacts of heavy duty vehicles and non-road mobile machinery emissions during the construction phase of the Proposed Development; and
  - Impacts of road traffic emissions generated by the Proposed Development when operational.
110. The scope of the air quality assessment will include:
    - The determination of baseline air quality conditions through examination of local monitoring data and other publicly available data;
    - The identification of relevant sensitive receptor locations for the construction and operational phases of the Proposed Development;
    - A qualitative assessment of impacts of the Proposed Development on dust soiling and concentrations of PM<sub>10</sub> during the construction period;
    - Consideration of potential impacts from heavy duty vehicles and non-road mobile machinery during the construction period; and
    - A quantitative assessment of the impacts of the operation of the Proposed Development on concentrations of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> from road traffic in the proposed year of opening.

### Construction Impacts

111. The potential impacts from dust generated during the construction phase of the Proposed Development will be considered using an approach based on the Institute of Air Quality Management (IAQM) Guidance for assessing impacts from construction activities (IAQM, 2014). Cumulative impacts arising from committed developments being constructed in the study area concurrently to the construction of the Proposed Development will also be considered.
112. Construction plant emissions will not be explicitly modelled, as relevant guidance from the IAQM (IAQM, 2014) states that "experience from assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) [...] suggests that they are unlikely to make a significant impact on local air quality and in the vast majority of cases they will not need to be quantitatively assessed". However, suitable mitigation measures for site plant will be presented as part of the mitigation measures based on advice presented in the IAQM guidance.
113. The number of heavy duty vehicles that will be in operation during the construction phase of the Proposed Development will be considered in the context of the guidance from IAQM and Environmental Protection UK (EPUK & IAQM) (2017) and the Design Manual for Roads and Bridges (DMRB) (Highways Agency, 2007). As the Proposed Development is not anticipated to lead to an increase in heavy duty vehicles that would be capable of having a significant impact on air quality, it is expected that such impacts will be screened out of the air quality assessment.

### Operational Impacts

114. The dispersion model ADMS-Roads will be used to quantify the impacts that road traffic emissions associated with the operation of the Proposed Development will have on concentrations of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> at selected sensitive receptor locations.
115. The scenarios that will be considered as part the assessment will include:
  - Current baseline scenario (for model verification purposes);
  - Opening Year – without the proposed development, including committed developments; and
  - Opening Year – with the proposed development, including committed developments.
116. Suitable receptor locations will be identified based upon detailed maps and photographs. Background pollutant concentrations will be determined using data derived from the Background Maps published by Defra (Defra, 2015).
117. The assessment will include a sensitivity test for the prediction of NO<sub>2</sub> road traffic impacts to address elevated real-world nitrogen oxides emissions from certain diesel vehicles. This test will be carried out

by applying adjustments to the 'official' emission factors and will represent a reasonable worst-case upper-bound to the assessment.

118. Meteorological data will be taken either from Bedford or Benson meteorological stations, or any other suitable site identified through discussions with the local authority. The year of meteorological data to be used in the dispersion model will be selected to match the latest year with available local monitoring data.
119. Baseline model output will be verified against appropriate monitoring data from the local authority, and an adjustment factor will be determined, in line with the methodology set out in the LAQM TG (16) guidance document (Defra, 2016).
120. The opening year 'without development' and 'with development' scenarios will both include vehicle trips associated with general growth from the baseline situation and also relevant committed developments. The opening year 'with development' scenarios will also include additional traffic associated with the Proposed Development. The inclusion of relevant committed developments in the traffic data utilised in the assessment will allow an inherently cumulative assessment of the Proposed Development to be undertaken.
121. The predicted concentrations will be compared with the relevant air quality objectives and any exceedances will be highlighted. The significance of the impacts will be evaluated using criteria recommended by the IAQM & EPUK
122. Appropriate mitigation measures, as listed in the IAQM guidance document on construction dust, will be proposed for the construction phase of the Proposed Development, based on the level of risk identified by the construction dust assessment.

## Buried Heritage (Archaeology) and Built Heritage

### Summary Baseline Context

123. The site has been the subject of numerous previous archaeological investigations which have indicated the archaeological potential of the site and the surrounding area. An archaeological trial trench evaluation was undertaken across the site and the area to its north, where the Tesco foodstore was subsequently constructed, in September and October 2007. This evaluation identified a quantity of exceptionally well preserved Mesolithic flint, which suggests the presence of in situ prehistoric deposits in the vicinity. Possible evidence of late prehistoric and Roman settlement was also encountered, including post holes and drip gullies that could potentially be associated with circular buildings. Boundary ditches were also identified. While some of these ditches were clearly post-medieval in date, others could potentially be of late prehistoric origin. AOC undertook detailed archaeological investigations on the Tesco foodstore site between November 2013 and January 2014. The excavations revealed a sequence of at least seven Bronze Age buildings and associated activity on either side of a relict watercourse. The buildings were represented by postholes; forming two roundhouses that were kept in good repair and rebuilt, probably across generations, and are likely to represent elements of a farmstead. The relative permanence of settlement is also indicated by the presence of three cremation burials at the top of the hill above the farmstead. Other postholes represented fences, which may have enclosed stock enclosures or settlement boundaries on flat ground either side of a river. Roman and post-medieval features were also identified on the site.
124. Ordnance Survey mapping from 1875 depicts the known location of a Roman Road along the western boundary of the site, along the current line of the Oxford Road, A41. In the middle of the first century AD the Romans established and fortified the town of Alchester at the intersection of Akeman Street and a road from Towcester to Dorchester, a location approximately 1km south of the site.
125. The only Scheduled Monument within the 1km study area is the aforementioned Alchester Roman Site. There are 116 Listed Buildings within the 1km study area; all but two of these are Grade II Listed and most are located north of the site within the Conservation Area at Bicester. The Grade II\* Old Priory and attached garden walls is located in priory Lane north east of the site and the Grade II\* Listed Old Vicarage is located in Church Street also north east of the site.

### Outline Scope of Assessment

126. Groundworks required for the Proposed Development have the potential to impact directly upon known buried archaeological remains present within the site and as such direct effects will be considered in the ES.
127. Indirect effects can have a variety of forms, if the Proposed Development affects the water table, it could potentially damage the preservation of organic remains within buried archaeological contexts beyond its boundaries. The majority of indirect affects result from changes to the settings of heritage assets and the Proposed Development also has the potential to indirectly affect the settings of designated heritage assets including Scheduled Monuments, Listed Buildings, Conservation Areas, Registered Battlefields and Registered Parks and Gardens. Designated heritage assets up to 1 km distant from the site will initially be identified. Those whose setting could potentially be impacted by the Proposed Development will be considered in detail in the assessment. The assessment will also consider the potential for non-visual settings effects, such as that which could potentially result from elevated traffic, lighting and noise.
128. The ES chapter will be prepared by AOC Archaeology Group and will conform to the standards of professional conduct outlined in the Chartered Institute for Archaeologists' Code of Conduct, the ClfA Standard and Guidance for Commissioning Work on, or Providing Consultancy Advice on, Archaeology and the Historic Environment, the ClfA Standards and Guidance for Historic Environment Desk Based Assessments and Field Evaluations.
129. The ES chapter will comply with National Planning Policy and Guidance on cultural heritage as contained within NPPF (2012) and Historic England Good Practice Advice notes as well as local planning policy represented by The Cherwell Local Plan, 2011-2031.
130. The primary source of information for the presence and significance of known non-designated historic/archaeological remains in the area will be the Oxfordshire Historic Environment Record and evaluation reports from previous archaeological works within and adjacent to the site. Up to date information on Scheduled Monuments, Listed Buildings, Registered Battlefields and Registered Parks and Gardens along with GIS shapefiles recording their locations and extent will be obtained from Historic England's Designation Data Download Area. Information on Conservation Areas, including their boundaries and character appraisals will be obtained from CDC.
131. All heritage assets within a distance of up to 1km from the site boundary will be identified within the ES. This will allow for an assessment of direct impacts and indirect impacts upon setting. An assessment of the potential for hitherto unknown archaeological remains to survive on the site will also be made. The need to assess any assets beyond the 1km study area will be identified through Scoping Opinions and consultation.
132. The submitted ES chapter will fully describe the baseline historic environment conditions, collating the results of desk-based data gathering, map regression, the examination of aerial photographs held by Historic England Archives, Swindon and a walkover survey. It will identify areas where the Proposed Development may impact upon heritage assets and include a constraints map for direct impacts. The ES chapter will provide and assessment of the identified designated heritage assets in the area surrounding the site which could be subject to potential effects upon setting.
133. Appendix 1 outlines the proposed detailed methodology for assessing effects upon heritage assets both direct and indirect. It takes account of NPPF, its practice guide and Historic England's Good Practice Advice Note 3: the setting of heritage assets (Historic England 2015).
134. Where significant effects are identified the ES chapter will put forward mitigation proposals. These proposals will seek to avoid or reduce identified effects. Where it is impossible to avoid or reduce the level of effect the ES chapter will consider the potential to offset any significant effects.

## Ecology

### Summary Baseline Context

135. Prime Environment Ltd have undertaken a Preliminary Ecological Appraisal of the application site (See Appendix 2). The survey aimed to inform the scope for any further works that may be required in the assessment of ecological effects arising from the Proposed Development. The survey found that the site is predominantly an intensively managed arable field, currently under a grass crop. The site also includes wet and dry ditches, hedgerows and mature boundary trees. One hedgerow qualifies as

important under the hedgerow regulations and the ditches were relatively species rich containing emergent and swamp vegetation. The habitats are described more fully in the PEA document.

136. Full desk study data has not yet been received, but there are no statutory designated sites that are likely to be effected by the proposals. Bicester Wetland Reserve is 280m from the site.
137. There are a number of ponds nearby which are suitable to support great crested newts. Drift net and pitfall trapping surveys were undertaken for great crested newts in terrestrial habitats at the site in 2006, but none were found.
138. The site's field margins, as well as a large log pile and the ditches are suitable habitat for reptiles.
139. Several skylark territories were noted during the survey.
140. The ditches, hedges and trees are suitable foraging and commuting habitat for bats and some of the trees could support bat roosts.
141. There is a single mammal burrow, which is likely to be an outlier badger sett (currently occupied by rabbits).

#### *Outline Scope of Assessment*

142. The assessment will consider both direct and indirect effects on the identified important ecological features resulting from a range of activities including, but not limited to:
- loss of vegetated ditch and arable margins;
  - loss of great crested newt terrestrial habitat (if they are present);
  - loss of skylark breeding habitat;
  - loss of badger sett (unlikely to be significant in EIA terms, but included as has legislative implications; and
  - direct and indirect effects on bat populations using the site to roost, feed or commute.
- Outline Scope of Further Surveys
- The following further surveys will be undertaken to inform the assessment:
  - Great crested newt eDNA survey to identify whether a population is extant within ponds close to the Site (500m) (to be undertaken by June);
  - Skylark survey to establish the number of territories held at the site (two visits between May and June);
  - Bat activity surveys – two transect routes, walked monthly between May and September (to be reviewed in July);
  - Bat activity surveys – four static detectors sampling for five consecutive nights each month; and
  - Bat Tree Assessments – detailed tree assessments for those which are at risk of interference effects e.g. lighting, possibly followed by climbing inspections.
143. The Ecological Impact Assessment (EclA) will be undertaken with reference to the CIEEM 'Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater and Coastal - Second Edition'. The aims of the ecology assessment will be to:
- Identify relevant ecological features (i.e. designated sites, habitats, species or ecosystems) which may be impacted;
  - Provide an objective and transparent assessment of the likely ecological impacts and resultant effects of the Proposed Development. Impacts and effects may be beneficial (i.e. positive) or adverse (i.e. negative);

- Facilitate objective and transparent determination of the consequences of the Proposed Development in terms of national, regional and local policies relevant to nature conservation and biodiversity; and
  - Set out what steps would be taken to adhere to legal requirements relating to the relevant ecological features concerned.
144. The assessment will describe the methods used to identify and assess the potential significant effects of the Proposed Development during the construction and operational phases. Baseline conditions will be described, including a summary of legislation/policy relevant to the baseline conditions, and subsequently the impact assessment will be undertaken taking into account avoidance and mitigation measures that are inherent to the design (e.g. the retention of a boundary tree known to support a bat roost), including the use of best practice construction methods (e.g. implementation of methods to suppress dust generation or avoid pollution of water courses). Additional mitigation, compensation and enhancement measures will be described, followed by an assessment of the significance of residual effects. A summary of the assessment will then be provided, together with relevant conclusions.
145. In line with the CIEEM guidelines the terminology used within the EclA will draw a clear distinction between the terms 'impact' and 'effect'. For the purposes of the EclA these terms will be defined as followed:
- Impact – Actions resulting in changes to an ecological feature. For example, demolition activities leading to the removal of a building utilised as a bat roost.
  - Effect – Outcome resulting from an impact acting upon the conservation status or structure and function of an ecological feature. For example, killing/injury of bats and reducing the availability of breeding habitat as a result of the loss of a bat roost may lead to an adverse effect on the conservation status of the population concerned.
146. For each phase of the Proposed Development (e.g. demolition, construction, operation), the assessment will be structured and reported by ecological feature with relevant potential impacts on that feature described in turn, and then the overall effect arising from those impacts reported.

#### *Evaluation of Ecological Features*

147. Data received through consultation, desk-based investigations and field-based investigations will be used to allow relevant ecological features (including designated sites, ecosystems, habitat and species) of value (or potential value) to be identified, and the main factors contributing to their value described and related to available guidance.
148. Ecological features may be important for multiple different reasons (e.g. rarity in a particular geographic context; role in habitat connectivity; or a species on the edge of their range). Relevant reasons for which an ecological feature is important will be described and considered in order to assign each relevant ecological feature an overall value in accordance with the following geographical frames of reference:
- International (i.e. European);
  - National (i.e. England);
  - County;
  - Borough;
  - Local;
  - Site;
  - Negligible (used where the value is lower than the Site level).
149. In determining the value of relevant ecological features the social and economic values will be considered separately. Where appropriate the significance of relevant social and economic effects will be defined and reported within separate community and/or socio-economic assessments.
150. Characterising potential ecological impacts

151. When describing potential impacts (and where relevant the resultant effects) reference will be made to the following characteristics:
- Beneficial/adverse:
  - Magnitude:
  - Spatial extent:
  - Duration:
  - Reversibility; and
  - Timing and frequency.
152. For each receptor only those characteristics relevant to understanding the ecological effect and determining the significance will be described.
153. Potential impacts on relevant ecological features will be assessed and a judgement reached on whether or not the resultant effect on conservation status or structure and function is likely to be significant. This process will take into consideration the characteristics of the impact, the sensitivity of the ecological feature concerned, and the geographic scale at which the feature is considered important.
154. The CIEEM guidelines state that:
- ‘For the purposes of EclA a ‘significant effect’ is an effect that either supports or undermines biodiversity conservation objectives for ‘important ecological features’ (i.e. relevant ecological features) or for biodiversity in general’.....
155. In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).
156. For designated sites, defined sites and ecosystems the assessment will consider how the proposals are likely to affect the conservation objectives for the Site and/or its interest/qualifying features. For ecosystems, consideration will be given to whether the proposals are likely to result in a change in ecosystem structure and/or function.
157. For species and habitats the effects of impacts on individual habitats and species will be considered in relation to ‘conservation status’ which is defined in the CIEEM guidelines as follows:
- For habitats: conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area;
  - For species: conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.
158. In considering effects on conservation status, reference will be made to relevant available guidance on the existing conservation status of a feature.
159. Conclusions on the significance of effects relate to the concepts of ‘structure and function’ or ‘conservation status’ as being either:
- Not-significant (i.e. no effect on structure and function, or conservation status); or
  - Significant (i.e. structure and function, or conservation status is affected).
160. Such judgements will be based, wherever possible, on quantitative evidence. However, where necessary the professional judgement of an experienced ecologist will be applied.
161. For those effects considered significant, the effect will also be characterised as appropriate (e.g. adverse or beneficial), and qualified with reference to the geographic scale at which the effect is significant (e.g. an adverse effect significant at a national level).

162. The scale of significance of an effect may not be the same as the geographic context in which the feature is considered important. For example, an effect on a species of principal importance for nature conservation at the national level may not have a significant effect on the conservation status of the national population of that species.

## Landscape and Visual Impact Assessment

### Outline Scope of Assessment

163. The LVIA will be prepared in accordance with a Methodology informed by guidance set out in ‘Landscape and Visual Impact Assessment’ published by the Landscape Institute and Institute for Environmental Assessment (2013). This baseline assessment will inform a description of the landscape character, condition and sensitivity of the existing site and key landscape and visual receptors. The assessment of landscape sensitivity seeks to establish the degree to which the landscape can accommodate change, without affecting the fundamental characteristics which contribute to aspects such as local distinctiveness, sense of place, appearance and landscape quality. These studies may include evaluation of physical landscape value and or quality and condition.
164. The study area for the landscape and visual assessment will be defined as the visual envelope or Theoretical Zone of Visual Influence (TZVI) for the Proposed Development. The Baseline ZVI and the Development Case TZVI will be modelled by creating a 3D digital terrain model (DTM) generated from Ordnance Survey (OS) base data.
165. The topographical data will be generated from Ordnance Survey (OS) base. The location, extent and height of existing vegetation have been recorded from the OS 1:25,000 scale raster file, from Google Earth and site observation.

### Visual baseline

166. Baseline visual receptors will be identified using a combination of desk-based study and site survey. This has identified the following types of potential community, residential, employment and transport based receptor locations:
- Public places e.g. playing fields, cricket club, church, school, Common Land;
  - Public Rights of Way e.g. footpaths, byways, and bridleways;
  - Residential e.g. detached, semi-detached, bungalow, terrace, apartment;
  - Workplaces e.g. business or commercial property; and
  - Transport routes e.g. classified and unclassified roads, cycle routes.
167. All potential visual receptors within the study area will be considered. A list of viewpoints has been prepared (see Figure 3) to demonstrate the wide range of potential baseline and development case views of the development site and the Proposed Development. Views from these locations will be documented in a structured and consistent manner. This process will use written descriptions and photographs to record the visual baseline. The viewpoint photographs have been taken in accordance with the Landscape Institute Advice Note 01/11. Due to the timing of the project, the visual assessment and the baseline photography will be undertaken in spring condition. A description of the view and identification of the type, location and receptor sensitivity has been made through a site based visual assessment.
168. Visual sensitivity will be assigned using the criteria derived from the GLVIA. Degree of exposure to the view e.g. permanence versus transience.

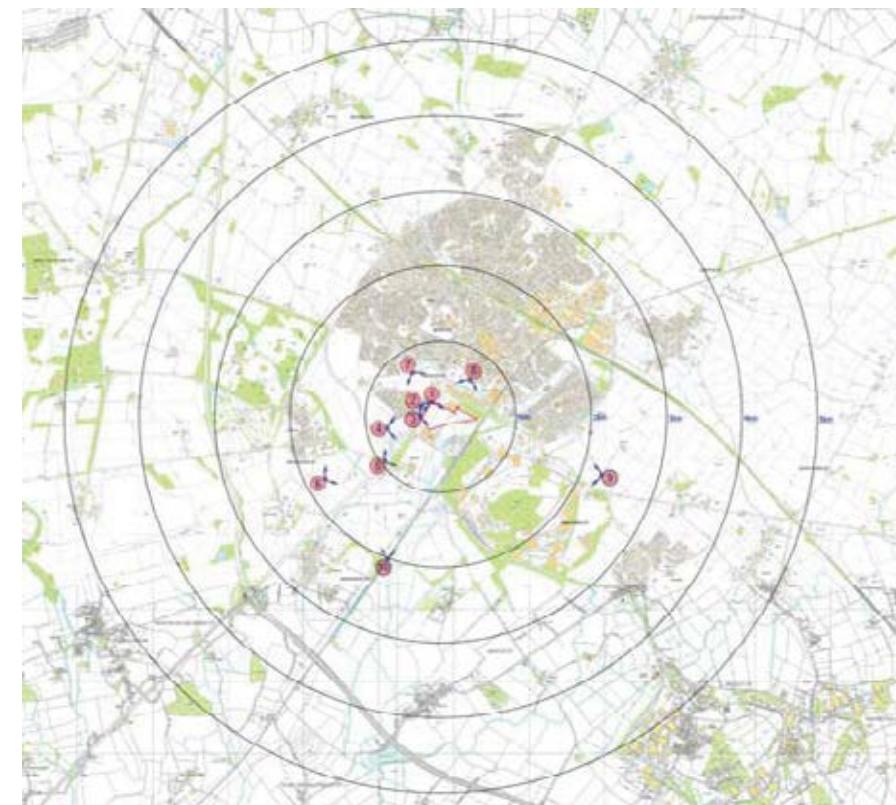
### Assessment of Potential Impacts

169. The assessment methodology will follow the standard GLVIA approach of assessing changes in the development case against the baseline condition. Predicted effects will be identified at, or for each receptor, and the magnitude of the identified landscape and visual changes evaluated by professional judgement. The significance of these effects will be determined by the inter-relationship of nature of effect (magnitude) and the nature of receptor (sensitivity)



170. Once a potential impact on these components has been identified, an experienced based judgement of the nature of the predicted landscape effect will be made and recorded as:
- Beneficial or adverse;
  - Direct or indirect;
  - Temporary/permanent;
  - Short, medium or long term;
  - Local/regional/national in scale; and
  - Single or cumulative.
171. The duration of effect would fall into the following categories:
- Short term – 0-5 years e.g. partial clearance of vegetation for construction;
  - Medium term – 5-10 years e.g. loss of new hedgerows for construction but replanted;
  - Long term – 10-50 years e.g. loss of semi-mature woody vegetation for construction but replanted; and;
  - Permanent – 50+ years e.g. loss of vegetation where replacement vegetation would not achieve pre-construction dimensions within 50 years.
172. Experience based judgement will then be used to identify the magnitude of the potential change that would result from the identified landscape impact. The significance of the predicted landscape effects will then be identified using a matrix form of evaluation. Effects will be assigned one of the four categories of Insignificant, Minor, Moderate or Major considering the magnitude of the change and the ability of the receptor to accommodate the proposed change (sensitivity).
173. The visual assessment will describe the changes to the existing views resulting from the proposed facilities. This written assessment will be supported by photographic analysis of the baseline views. For each viewpoint an experienced based judgment of the nature of the predicted visual effect will be made and recorded as: Beneficial or adverse; Direct or indirect; Temporary/permanent; Short, medium or long term; Local/regional/national in scale; Single or cumulative.
174. The views will be photographed in accordance with the Landscape Institute Guidance. The assessment will be supported by wireframe photomontages of the development case. These will be produced to LI guidelines and will be presented as wireframe photomontages as panoramas, for context, and as scaled views to enable the viewer to better judge scale and impact. All methodologies will be defined in the assessment document.
175. The magnitude of the identified visual impact will be identified for receptors through a written assessment. The significance of the identified visual effects will then determined by the inter-relationship of magnitude of impact and receptor sensitivity. The parameters for the significance threshold assigned for each identified landscape and visual effect will be defined within the written assessment.
176. Mitigation requirements will be considered following the assessment of impacts with the effectiveness of the mitigation identified over year one, year 5 and year 20 with residual impacts being identified.

Figure 3: Photography Location Plan



## ENVIRONMENTAL TOPICS TO BE 'SCOPED OUT' OF THE EIA

### Ground Conditions

177. A Phase 1 Environmental Risk Assessment has been undertaken by Buro Happold. The Phase 1 Environmental Risk Assessment Report is provided within Appendix 3 to this EIA Scoping Report. A summary of the report is provided below.

#### *Existing and Historical Uses On-Site Use*

178. The site, historically and presently, is open agricultural land. Prior to 1880, the site was agricultural land with field boundaries throughout the site. [Of particular interest is the western field boundary, which remained constant throughout the mapping and is now the drainage ditch running through the site]. A single, small building was present in the west of the site. Prior to 1898, a second small building has been constructed in the west of the site. These building were removed by 1950. Prior to 1985 two different buildings were constructed in the west of the site and a new drain had been laid in the central to the site running north / south, and by 2002 a third building had been constructed. This layout was present up and including the 2014 map. In recent years (since 2014), the land adjacent to the north has been developed as a food superstore with a petrol forecourt, another petrol forecourt is located 100m north west.

#### *Existing and Historical Uses On-Site Use*

179. Prior to 1880, the site was surrounded by agricultural land that was noted as 'Liable to Floods'. Roman Way bound the west of the site. Adjacent to the eastern corner of the site was Bicester Sewage Pipe, flowing 200m south to a sewage tank. 50m east was the Oxford Main line. The edge of Bicester was 500m north. Prior to 1960 new railway sidings and depots were constructed from 250m south around Graven Hill. By 1970, Bicester had expanded west, and Roman Way was straightened and renamed to Oxford Road, a Sewage treatment works was constructed 200m south. 50m north was a new building, part of a farm, and a well. This well appears to be the source of the water, which enters the drainage ditch intersecting the site (it is assumed the well was present before this, just unlabelled). By 1985 Bicester had expanded further west, the sewage treatment works also expanded. The field boundary / drainage ditch was no longer present adjacent to the north. A garden nursery was constructed adjacent to the south. By 1995 the A41 was constructed adjacent to the north of the site running east, beyond this was a new commercial area with recreation grounds beyond. The nursery to the south also expanded.

#### *Geoenvironmental Conditions*

180. In 2014, BuroHappold commissioned Structural Soils to complete a Site Investigation to provide information on a proposed trunk sewer, access road and ornamental lake. The data was combined with an investigation from 2008. The 2008 works comprised five cable percussion boreholes, a rotary cored borehole and five machine dug trial pits. In 2014, an additional cable percussive borehole and five mechanical trial pits were completed. The exploratory holes extended to a maximum depth of 11.70m below ground level (bgl) in the rotary borehole. The logs are reproduced in Appendix 3..

181. Typically, from ground level to about 1-2m bgl there were superficial deposits. In the east, the Kellaways Clay Member were present up to 4.9m bgl, underlying the superficial deposits. The Kellaways Clay Member thins to the west and was not present in the far west. The Cornbrash Formation was encountered in all locations beneath the Kellaways Clay Member (where present) or the Superficial Deposits where the Kellaways Clay Member is not present. The base of the Cornbrash Formation was only proven in BH2, where the formation extended to 2.25m bgl. The Forest Marl Formation was proven between 2.25m bgl and 9.40m bgl, under the Forest Marl Formation the White Limestone was present to the base of the hole (11.70m bgl).

#### *Preliminary Risk Assessment*

182. Land contamination is regulated under several regimes, including environmental protection, pollution prevention and control, waste management, planning and development control, and health and safety legislation. The primary regulatory regimes under which contaminated land are managed in the UK are: under the planning process described in the National Planning Policy Framework and under Part 2A of the Environmental Protection Act. The framework for the assessment of potential land contamination adopted in this assessment is based on current guidance documents regarding the implementation of

these regimes and the assessment of potentially contaminated land, with particular reference to: the Environment Agency Model Procedures and their Guiding Principles on Land Contamination; and the relevant British Standard (BS10175:2011).

183. Base on the above, the conceptual model of the site the Phase 1 Environmental Risk Assessment did not identify any significant source-pathway-receptor linkages. The highest risk (a moderate / low risk) is to human health. This is based on the potential for asbestos containing materials within the bund that surrounds the site. The Phase 1 Environmental Risk Assessment states that a site investigation will be required to assess the geoenvironmental risks associated with the construction of the proposed structures. This investigation should quantify the potential risks to site neighbours and future site users and will inform the need for any mitigation or remediation requirements.

184. It is envisaged that several procedures will need to be fulfilled pre-commencement of the works across the site to ensure the protection of human health and the environment. The procedures are standard practices that need to be undertaken prior to the start of below ground works on any site and would be undertaken in accordance with relevant legislation. It is envisaged that the fulfilment of these procedures would be secured through appropriately worded planning conditions attached to the planning permission. Planning conditions pertaining to the following are anticipated:

- Selection of appropriate piling techniques and preparation of a piling method statement so as not to result in any unacceptable risk to groundwater;
- Preparation and execution of a site investigation scheme. The site investigation scheme shall be based on the risks identified in the preliminary risk assessment and shall provide provision for, where relevant, the sampling of vapour, ground gas, surface and groundwater;
- As required, preparation of a remediation method statement which will detail any required remediation works and shall be designed to mitigate any remaining risks identified in the risk assessment;
- As required, the execution of the remediation method statement and preparation of a verification report;
- Definition of the procedures for long term monitoring past the completion of the development works to verify the success of the remediation works;

Definition of the procedures if any unexpected contamination is found on site including the reporting procedure for its identification and management.

#### *Conclusion*

185. The Phase 1 Environmental Risk Assessment (Appendix 3) has defined the risks in relation to the redevelopment of the site on human health and the environment, including controlled waters.

186. The risks can however be adequately managed (through industry recognised standards and best practice measures), and so the redevelopment of the site is unlikely to generate any significant ground conditions (including groundwater) related environmental effects.

187. The risks can be adequately managed so as not to cause unacceptable harm to human health, the built environment, ecology or controlled waters.

188. As such, it is considered that the risks and resultant effects are sufficiently well understood and that based on the information currently available, it is likely that the residual effects associated with ground conditions and groundwater would be insignificant.

189. Furthermore, several planning conditions attached to the planning permission are envisaged to cater for the further reporting, site investigation works and (if required) remediation prior to the start of works on site are anticipated.

190. On this basis, it is suggested that a full ground conditions (including groundwater) impact assessment is scoped out of the EIA. The ES will however include the Phase 1 Environmental Risk Assessment and will specifically, within Chapter 5: Demolition and Construction of the ES (Volume I), cite the industry

recognised standards and best practice measures (including those to be undertaken pursuant to planning conditions attached to the planning permission) to ensure the protection of human health, the environment and controlled waters.

## Water Resources and Flood Risk

### Flood Risk and Drainage

191. The majority of the area within the red line has been subject to a flood risk assessment as part of the previous outline planning application and therefore the flood characteristics of the area are well documented.
192. The site's south eastern boundary is adjacent to a watercourse known as the Langford Brook and as a result falls within the flood zone of this watercourse. The majority of the land within the red line is designated as zone 1 –low risk of flooding – with a small area on the boundary of zone 1 and zone 2. The Proposed Development will be contained within zone 1. The exact limit of zone 2 will be determined by a Flood Risk Assessment (FRA) which will be prepared and presented as an appendix to the ES to support the outline planning application in accordance with the requirements of the NPPF, Regional Planning Policies and Environment Agency Guidance.
193. The FRA will include the following:
- details of any historical flooding events;
  - acceptability of the proposed land use in relation to known flood zones;
  - volume of surface water runoff likely to be generated by the development;
  - details of existing and proposed SuDS surface water drainage;
  - details of flood resilience and resistance measures as appropriate;
  - access and egress arrangements; and
  - climate change effects.
194. In addition to the FRA, a drainage strategy will be prepared for the site. The drainage network already constructed as part of the primary infrastructure was designed in accordance with the requirements within the original drainage strategy of the original outline planning application. Surface water runoff will be limited to greenfield runoff rates and attenuation measures will be incorporated within the development. These will be in accordance with good practice contained within Sustainable Drainage Systems (SuDS) recommendations. The surface water network constructed to serve the site has been sized accordingly with an outfall to the watercourse which currently drains the site. Therefore the existing surface water flow regime will be maintained.

### Water Demand and Wastewater

195. The primary water supply and drainage infrastructure to serve the Proposed Development has been constructed and completed in December 2015. The anticipated water demand for the development was agreed with Thames Water and a new water main installed alongside the new access road. The main was increased in size over and above what is required to serve the proposed development in order to provide water for firefighting for the Tesco foodstore to the north of the site. Therefore, there is excess capacity to serve the size and type of development proposed. In addition, the capacity assessment has not included the reduction in demand that will occur from the use of water management strategies that will be adopted in accordance with good practice methods such as rainwater harvesting, low use appliances, and grey water use.
196. The Proposed Development will result in low volumes of waste water. A 600mm foul sewer has been constructed under the access road with connections to serve the Proposed Development. The sewer has been adopted by Thames Water and also serves the Kingsmere Residential Scheme. The volume of waste water arising from the Proposed Development will be insignificant in comparison with the capacity of the sewer.

### Conclusion

197. The site's south eastern boundary is adjacent to a watercourse known as the Langford Brook and as a result falls within the flood zone of this watercourse. The majority of the area covered by the outline planning application is within flood zone 1 and no development is proposed within flood zone 2. A number of flood studies have been carried out since the initial outline planning application for the site in 2007 so the flood characteristics are well understood.
198. The primary drainage infrastructure has already been constructed and this is in line with the drainage strategy for the site. The site is already served by a water main and adopted foul sewer with capacities well in excess of the estimated demands from the Proposed Development. As a result no significant effects are anticipated in respect of water demand and waste water discharges resulting from the Proposed Development.
199. A Flood Risk Assessment submitted in support of the outline planning application will include a drainage strategy. It is intended to summarise the findings and recommendations of the FRA and Outline Drainage Strategy within the ES. Specifically, information will be presented on the measures proposed to avoid or mitigate flood risk, including the use of any SUDS and attenuation storage provision.
200. As a full FRA and Outline Drainage Strategy will be prepared and submitted as part of the ES, it is not intended to present within the ES an additional 'Water Resources, Flood Risk and Drainage' chapter. The FRA, Outline Drainage Strategy and the information on these aspects that will be summarised and presented within the ES will provide a sufficient level of understanding on the potential for significant effects associated with water resources, flood risk and drainage. No further analysis is considered necessary.

## PROPOSED STRUCTURE OF THE ENVIRONMENTAL STATEMENT

201. The ES will comprise the following set of documents:
202. **ES Non-Technical Summary (NTS):** this document will provide a concise summary of the Proposed Development, alternative designs that were considered, environmental effects and mitigation measures.
203. **ES Volume I:** This will contain the full text of the EIA with the proposed chapter headings as follows:
- Introduction;
  - EIA Methodology;
  - Alternatives and Design Evolution;
  - The Proposed Development;
  - Construction;
  - Socio-economics;
  - Transportation and Access;
  - Noise and Vibration;
  - Air Quality;
  - Buried Heritage (Archaeology) and Built Heritage;
  - Ecology;
  - Landscape and Visual Impact Assessment
  - Effect Interactions; and
  - Residual Effects and Conclusions.

204. **ES Volume II: Technical Appendices:** these will provide supplementary details of the environmental studies conducted during the EIA including relevant data tables, figures and photographs and will include amongst others, the Flood Risk Assessment, Preliminary Ecology Appraisal, Phase 1 Environmental Risk Assessment and the Transport Assessment.

#### SUMMARY AND CONCLUSIONS

205. This Report requests a Scoping Opinion of CDC pursuant to Regulation 13 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended 2015). The EIA Scoping Report suggests a comprehensive scope of work based on previous experience of the assembled team of specialists and existing knowledge of the site. CDC and consultees are invited to consider the contents of this report and comment accordingly within the five-week period prescribed by the EIA Regulations.

## Appendix 1 - Archaeology

**Appendix 1: Assessment of Significance / Assessment Criteria**

This appendix sets out the methodology for assessing effects upon heritage assets both direct and indirect. It takes account of NPPF, its practice guide and Historic England’s Good Practice Advice Note 3: the setting of heritage assets<sup>1</sup>.

**The Assessor**

AOC Archaeology Group conforms to the standards of professional conduct outlined in the Chartered Institute for Archaeologists’ Code of Conduct<sup>2</sup>, the ClfA Standard and Guidance for Commissioning Work on, or Providing Consultancy Advice on, Archaeology and the Historic Environment<sup>3</sup>, the ClfA Standards and Guidance for Historic Environment Desk Based Assessments<sup>4</sup> and Field Evaluations<sup>5</sup>.

AOC Archaeology Group is a Registered Archaeological Organisation of the Chartered Institute for Archaeologists. This status ensures that there is regular monitoring and approval by external peers of our internal systems, standards and skills development.

AOC is ISO 9001:2008 accredited, in recognition of the Company’s Quality Management System.

**Assessing Cultural Value (Significance) & Importance**

The definition of cultural significance is readily accepted by heritage professionals both in the UK and internationally and was first fully outlined in the Burra Charter, Article One of which identifies that ‘cultural significance’ or ‘cultural heritage value’ means aesthetic, historic, scientific, social or spiritual value for past, present or future generations<sup>6</sup>. This definition has since been adopted by heritage organisations around the world, including Historic England (HE). The NPPF defines cultural significance as:

*“The value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset’s physical presence, but also from its setting.”<sup>7</sup>*

The term ‘cultural value’ will be used throughout the assessment as opposed to ‘cultural significance’, in order to avoid confusion with the concept of a ‘significant effect’ in EIA terms.

All heritage assets have some value, however some assets are judged to be more important than others. The level of that importance is, from a cultural resource management perspective, determined

<sup>1</sup> Historic England (2015) Good Practice Advice Note 3: the setting of heritage assets  
<sup>2</sup> Chartered Institute for Archaeologists (2014) Code of Conduct  
<sup>3</sup> Chartered Institute for Archaeologists (2014) Standard and guidance for commissioning work on, or providing consultancy advice on, archaeology and the historic environment  
<sup>4</sup> Chartered Institute for Archaeologists (2014) Standards and Guidance for Historic Environment Desk Based Assessments  
<sup>5</sup> Chartered Institute for Archaeologists (2014) Standard and guidance for archaeological field evaluation  
<sup>6</sup> ICOMOS (1999). Burra Charter Article 1.2.  
<sup>7</sup> DCLG: Department for Communities and Local Government (2012). NPPF, 56.

by establishing the asset’s capacity to inform present or future generations about the past. In the case of many heritage assets their importance has already been established through the designation (i.e. scheduling, listing and register) processes applied by HE.

The criteria that will be used to establish importance in the ES are presented in Table 1 below and are drawn from the Department of Media, Culture and Sports publication, Principles for Selection of Listed Buildings,<sup>8</sup> and the Scheduled Monuments Policy Statements published by the same body,<sup>9</sup> which outline the criteria for designating heritage assets.

**Table 1: Criteria for Establishing Importance**

Importance	Criteria
International and National	World Heritage Sites;  Scheduled Monuments (Actual and Potential);  Grade I and II* Listed Buildings;  Grade I and II* Registered Parks and Gardens;  Registered Battlefields;  Fine, little-altered examples of some particular period, style or type.
Regional	Grade II Listed Buildings;  Grade II Registered Parks and Gardens;  Conservation Areas;  Major examples of some period, style or type, which may have been altered;  Asset types which would normally be considered of national importance that have been partially damaged (such that cultural heritage value has been reduced).
Local	Locally Listed Heritage Assets;  Lesser examples of any period, style or type, as originally constructed or altered, and simple, traditional sites, which group well with other significant remains, or are part of a planned group such as an estate or an industrial complex;  Asset types which would normally be considered of regional importance that have been partially damaged or asset types which would normally be considered of national importance that have been largely damaged (such that their cultural heritage value has been reduced).
Negligible	Relatively numerous types of remains;  findspots or artefacts that have no definite archaeological remains known in their context;  Asset types which would normally be considered of local importance that have been largely damaged (such that their cultural heritage value has been reduced);

<sup>8</sup> DMCS (2010). Principles for Selection of Listed Buildings.  
<sup>9</sup> DMCS (2013). Scheduled Monuments Policy Statements.

**Methodology for assessing direct physical effects**

A direct effect by a development can potentially result in an irreversible loss of information content and therefore cultural heritage value. The potential magnitude of change upon heritage assets caused by the proposed development will be rated using the classifications and criteria outlined in Table 2 below.

**Table 2: Criteria for establishing magnitude of physical change**

Physical Effect	Criteria
High	Major loss of information content resulting from total or large-scale removal of deposits from a site. Major alteration of a monument's baseline condition.
Medium	Moderate loss of information content resulting from partial removal of deposits from a site. Moderate alteration of a monument's baseline condition.
Low	Minor detectable changes leading to the loss of information content. Minor alterations to the baseline condition of a monument.
Marginal	Very slight or barely measurable loss of information content. Loss of a small percentage of the area of a site's peripheral deposits. Very slight alterations to a monument.
None	No physical change anticipated.

The predicted level of direct effect upon each asset will be determined by considering its importance in conjunction with the magnitude of change predicted for it. The method of deriving the level of effect classifications is shown in Table 3 below:

**Table 3: Method of rating level of direct effects on heritage assets by the Proposed Development**

Magnitude of Change	Importance of Asset			
	Negligible	Local	Regional	National and International
High	Minor	Moderate	Moderate-Major	Major
Medium	Negligible - Minor	Minor-Moderate	Moderate	Moderate-Major
Low	Negligible	Minor	Minor-Moderate	Moderate
Marginal	Negligible	Negligible	Minor	Minor-Moderate
None	None	None	None	None
The level of effects recorded in grey highlighted cells are considered to be 'significant'				

**Methodology for assessing indirect effects upon setting**

This sub-section outlines the detailed methodology used in assessing potential effects upon the setting of heritage assets. The methodology presented here sets out criteria for assessing sensitivity to changes to setting (Relative Sensitivity), magnitude of change and level of effect.

Assessing Sensitivity of Assets to Changes to their Setting

Whilst determining the relative cultural value of a heritage asset is essential for establishing its importance, it is widely recognised<sup>10</sup> that the importance of an asset is not the same as its sensitivity to changes to its setting. Thus in determining effects upon the setting of assets by a proposed development, both importance and sensitivity to changes to setting need to be considered.

Setting is a key issue in the case of some, but by no means all assets. A nationally important asset does not necessarily have high sensitivity to changes to its setting (relative sensitivity) this may be because its value lies in its other characteristics and its setting is not a factor which contributes demonstrably to its value. An asset's sensitivity refers to its capacity to retain cultural heritage value in the face of changes to its setting. The ability of the setting to contribute to an understanding, appreciation and experience of the asset and its value also has a bearing on the sensitivity of that asset to changes to its setting. Assets with high sensitivity will be vulnerable to changes that affect their settings, and even slight changes may reduce their value or the ability of setting to contribute to the understanding, appreciation and experience of the asset. Less sensitive assets will be able to accommodate greater changes to their settings without significant reduction in their value, and in spite of such changes the relationship between the asset and its setting will still be legible.

The criteria for establishing an asset's relative sensitivity are outlined in Table 4 below.

**Table 4: Criteria for Establishing Relative Sensitivity**

Sensitivity	Definition
High	An asset whose setting contributes significantly to an observer's understanding, appreciation and experience of it and its value should be thought of as having High Sensitivity to changes to its setting. This is particularly relevant for assets whose settings, or elements thereof, contribute directly to their value (e.g. form part of their Evidential and Aesthetic Value <sup>11</sup> ). For example an asset which retains an overtly intended or authentic relationship with its setting and the surrounding landscape. These may in particular be assets such as ritual monuments that have constructed sightlines to and/or from them, or structures intended to be visually dominant within a wide landscape area e.g. castles, tower houses, prominent forts etc.  An asset, the current understanding, appreciation and experience of which, relies heavily on its modern aesthetic setting. In particular an asset whose setting is an important factor in the retention of its cultural value.
Medium	An asset whose setting contributes moderately to an observer's understanding, appreciation and experience of it and its value should be thought of as having Medium Sensitivity to changes to its setting. This could be an asset for which setting makes a contribution to value, but whereby its value is derived mainly from its physical evidential values. This could for

<sup>10</sup> Lambrick (2008). Setting Standards: A Review prepared on behalf of the IFA.

<sup>11</sup> Historic England (2008). Conservation Principles, 28-29.

Sensitivity	Definition
	<p>example include assets which had an overtly intended authentic relationship with their setting and the surrounding landscape but where that relationship (and therefore the ability of the assets' surroundings to contribute to an understanding, appreciation and experience of them and their value) has been moderately compromised either by previous modern intrusion in their setting or the landscape, or where the asset itself is in such a state of disrepair that the relationship with setting cannot be fully determined.</p> <p>An asset, the current understanding, appreciation and experience of which, relies partially on its modern aesthetic setting regardless of whether or not this was intended by the original constructors or authentic users of the asset. An asset whose setting is a contributing factor to the retention of its cultural value.</p>
Low	<p>An asset whose setting makes some contribution to an observer's understanding, appreciation and experience of it and its value should generally be thought of as having Low Sensitivity to changes to its setting. This may be an asset whose value is mainly derived from its physical evidential values and whereby changes to its setting will not materially diminish our understanding, appreciation and experience of it or its value. This could for example include assets which had an overtly intended authentic relationship with their setting and the surrounding landscape, but where that relationship (and therefore the ability of the assets' surroundings to contribute to an understanding, appreciation and experience of them and their) has been significantly compromised either by previous modern intrusion to its setting or landscape, or where the asset itself is in such a state of disrepair that the relationship with setting cannot be determined.</p>
Marginal	<p>An asset whose setting makes minimal contribution to an observer's understanding, appreciation and experience of it and its value should generally be thought of as having Marginal Sensitivity to changes to its setting. This may include assets for which the authentic relationship with their surrounding has been lost, possibly having been compromised by previous modern intrusion, but who still retain cultural value in their physical evidential value and possibly wider historical and communal values.</p>

The determination of an asset's sensitivity is first and foremost reliant upon the determination of its setting. The criteria set out in Table 4 above are intended as a guide. Assessments of individual assets are informed by knowledge of the asset itself, of the asset type if applicable, and by site visits to establish the current setting of the assets. This allows for the use of professional judgement and each asset is assessed on an individual basis. It should be noted that individual assets may fall into a number of the sensitivity categories presented above, e.g. a country house may have a high sensitivity to alterations within its own landscaped park or garden, but its sensitivity to changes in the wider setting may be less.

In establishing the relative sensitivity of an asset to changes to its setting, an aesthetic appreciation of that asset and its setting must be arrived at. The ES chapter will outline a range of factors which should be considered when establishing the setting of an asset and therefore determining its sensitivity. These will be used as a guide in assessing each asset from known records and in the field. In defining these criteria, emphasis will be placed on establishing the current setting of each asset and how the proposed development would affect it.

#### Assessing Magnitude of Change

Determining the magnitude of change caused by the proposed development requires an identification of the change to the setting of any given asset, and in particular changes to those elements of the setting that inform its cultural value. Table 5 below outlines the main factors affecting magnitude of change:

**Table 5: Factors Affecting Magnitude of Change**

Site Details	Importance of detail for assessing magnitude of change
1) Proximity to Proposed Development	Increasing distance of an asset from the Proposed Development will, in most cases, diminish the effects on its setting.
2) Visibility of development (based on visualisations where appropriate)	The proportion of the development that is likely to be intervisible with the asset will usually directly affect the magnitude of change on its setting.
3) Complexity of landscape	The more visually complex a landscape is, the less prominent the Proposed Development may appear within it. This is because where a landscape is visually complex the eye can be distracted by other features and will not focus exclusively on the Proposed Development. Visual complexity describes the extent to which a landscape varies visually and the extent to which there are various land types, land uses, and built features producing variety in the landscape.
4) Visual obstructions	This refers to the existence of features (e.g. tree belts, forestry, landscaping or built features) that could partially or wholly obscure the Proposed Development from view.

It is acknowledged that Table 5 above primarily deals with visual factors affecting setting. Whilst the importance of visual elements of settings, e.g. views, intervisibility, prominence etc, are clear, it is also acknowledged that there are other, non-visual factors which could potentially result in setting effects. Such factors could be other sensory factors, e.g. noise or smell, or could be associative. In coming to a conclusion about magnitude of change upon setting, the assessment will make reference to traffic, noise, air quality, and landscape and visual assessments, undertaken for the ES, as appropriate.

Once the above has been considered, the prediction of magnitude of change in setting is based upon the criteria set out below in Table 6. In applying these criteria, particular consideration will be given to the relationship of the proposed development to those elements of setting which have been qualitatively defined as most important in contributing to the value of the heritage asset and the ability to understand, appreciate and experience it and its value.

**Table 6: Criteria for Classifying Magnitude of Change in Setting**

Magnitude	Criteria
High	<p>Direct and substantial change in view affecting a significant sightline to or from a ritual monument or prominent fort;</p> <p>Direct and substantial change in view affecting a key 'designed-in' view or vista from a Designed Landscape or Listed Building;</p> <p>Direct severance of the relationship between a asset and its setting;</p>

	Major imposition within a Cultural Landscape; A change that alters the setting of an asset such that it threatens the protection of the asset and the understanding of its cultural value.
Medium	Oblique change in view affecting an axis adjacent to a significant sightline to or from a ritual monument but where the significant sightline of the monument is not obscured;  Oblique change in view affecting a key 'designed-in' view or vista from an Designed Landscape or Listed Building;  Partial severance of the relationship between a asset and its setting;  Notable alteration to the setting of an asset but not directly affecting those elements of the setting which contribute most to the understanding of the cultural value of the asset;  Notable, but not major, imposition within a Cultural Landscape;  A change that alters the setting of an asset such that the understanding of the asset and its cultural value is marginally diminished.
Low	Peripheral change in view affecting a significant sightline to or from a ritual monument, designed landscape or building;  Minor imposition within a Cultural Landscape;  A change that alters the setting of an asset, but where those changes do not materially affect an observer's ability to understand, appreciate and experience the asset or its value.
Marginal	All other changes to setting
None	No setting changes

#### Assessing Level of Effect on Setting

The level of effect resulting from changes in the setting of cultural heritage assets is judged to be the interaction of the asset's sensitivity (Table 4) and the magnitude of the change (Table 6) and also takes into consideration the importance of the asset (Table 1). In order to provide a level of consistency the assessment of sensitivity, the prediction of magnitude of change and the assessment of level of effect have been guided by pre-defined criteria. A qualitative descriptive narrative is also provided for each asset to summarise and explain each of the professional value judgments that have been made in reaching a conclusion on sensitivity of the asset and the magnitude of change.

The interactions that guide the determination of level of effect on settings of the assets in question is shown in Table 7.

**Table 7: Level of Effect on the Setting of Cultural Heritage Assets**

Magnitude of Change	Relative Sensitivity			
	<i>Marginal</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>
<i>High</i>	Minor	Minor-Moderate	Moderate	Major
<i>Medium</i>	Negligible	Minor	Minor-Moderate	Moderate

<i>Low</i>	Neutral	Negligible	Minor	Minor-Moderate
<i>Marginal</i>	Neutral	Neutral	Negligible	Minor
The levels of effect recorded in grey highlighted cells are 'significant'				

#### Cumulative Effects

The assessment of cumulative effects will be undertaken in a similar manner to that of the potential effects but will take into consideration other developments as agreed with the planning authority, including those which are operational, under construction, consented or proposed. Cumulative effects relating to cultural heritage are for the most part limited to indirect effects upon the settings of heritage assets.

Those heritage assets which are included in the detailed setting assessment, under operational effects for the proposed development, will also be considered when assessing the potential for cumulative effects. However, only those assets which are judged to have the potential to be subject to significant cumulative effects will be included in the detailed cumulative assessment provided. While all developments and development proposals, as agreed with the planning authority, will be considered, only those specific developments which would contribute to, or have the possibility to contribute to, cumulative effects on specific heritage assets are discussed in detail in the text.

As there are no specific guidelines with regard to undertaking cumulative assessment for heritage assets, this assessment will follow the criteria for assessing setting impacts as set out above. The assessment of cumulative effects will consider whether there would be an increased impact upon the setting of heritage assets as a result of adding the proposed development to a baseline, which may include operational, under construction, consented or proposed developments as agreed with the planning authority.

#### Harm

The NPPF, where designated heritage assets are concerned, requires us to make an assessment as to the level of harm which could be caused to designated heritage assets by development. It requires a judgement to be made as to whether that harm is '*substantial*' or '*less than substantial*'<sup>12</sup>. Where no effect is predicted or where effects are predicted to be neutral, e.g. where a proposed development may be perceptible but will not materially affect the setting of an asset or diminish its cultural value, it may be found that there will be no harm to a heritage asset. The level of harm predicted, or lack thereof, establishes whether the planning test should be applied and where harm is found the level of that harm establishes the correct policy test. Extant guidance on harm relevant to this assessment is set out in the NPPG.

<sup>12</sup> DCLG: Department for Communities and Local Government (2012). NPPF, 31.



As there are no designated heritage assets within the Site, there will be no direct effects upon designated heritage assets as a result of the proposed development. As such, any discussion of harm in this assessment will relate to indirect effects on the setting of designated heritage assets.

The NPPG notes that the '*substantial*' harm is a '*high test*' and that as such it is unlikely to result in many cases. What matters in establishing whether harm is '*substantial*' or not, relates to whether a change would seriously adversely affect those attributes or elements of a designated asset that contribute to or give it its value.

In terms of effects upon the setting of designated heritage assets, it is considered that only those effects identified as 'significant' in this assessment will have the potential to be of '*substantial*' harm. Where no significant effect is found, the harm is considered to be '*less than substantial*'. This is because, as set out earlier in this methodology, effects only reach the significance threshold if their relative sensitivity to changes in setting is at the higher end of scale, or if the magnitude of change is at the higher end of the scale.

For many designated assets, setting may not contribute to their value or the contribution to value may be limited. For these assets, even High magnitude changes to setting are unlikely to have adverse effects on the value of the designated asset. As set out in Table 6, lower ratings of magnitude of change tend to relate to notable or perceptible changes to setting but where these changes do not necessarily obscure or damage elements of setting or relationships which directly contribute to the value of assets. As such, effects that are not significant will result in '*less than substantial*' harm. Where there are no effects or effects are deemed to be Neutral there will be no harm.

Where significant effects are found, a detailed assessment of the level of harm will be made. Whilst non-significant effects will cause '*less than substantial*' harm, the reverse is not always true. That is, the assessment of an effect as being '*significant*' does not necessarily mean that the harm to the asset is '*substantial*'. The assessment of level of harm in the ES Chapter, where required, will be a qualitative one, and will largely depend upon whether the effects predicted would result in a major impediment to the ability to understand or appreciate the heritage asset in question by reducing or removing its information content and therefore reducing its cultural value.

## Appendix 2 – Preliminary Ecology Appraisal

**Document Control**

Report Issue	Notes
01	Original document to client.
02	Amendment following initial client review
03	
05	
05	
06	
Managing Office	Derby

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## 1 Introduction

### 1.1 Terms of Reference

In May 2017 Prime Environment Limited (Prime Environment) was instructed by Trium Environmental Consulting LLP (the Client) to undertake a Preliminary Ecological Appraisal of OS Parcel 2200 adjoining Oxford Road, north of Promised Land Farm, Oxford Road, Bicester. (Ordnance Survey (OS) grid Reference SP 57958 21564) (The Site).

The Site is 12 hectares and comprises an arable field with rough grassland margins and hedgerows with trees. There is a ditch running across the Site in the west and dry and wet ditches at the field boundaries. The Survey Area is slightly larger than the Site (15 ha) as the Site does not include all of the field.

The project proposals are to develop the Site into a large business park with associated hard and soft landscaping. The application will be subject to a formal Environmental Impact Assessment (EIA).

### 1.2 Aims and Objectives

The aims of the study were to:

- Identify, describe and assess the value of any sensitive ecological receptors at the Site and the immediate surrounding area.
- Identify potential ecological impacts of development and suggest appropriate building constraints, outline mitigation and compensation measures.
- Identify whether significant impacts to ecological receptors is likely, and therefore whether ecology should be included in the EIA.
- Make recommendations for any necessary further survey work or licensing, as required.

Ecological information for the assessment was provided by an Extended Phase 1 Habitat Survey and desk study (ongoing).

## 2 Methodology

This survey and reporting was undertaken by Jo Pedder Bsc. hons. Jo is a full member of the Chartered Institute of Ecology and Environmental Management and has over 14 years' professional ecology experience. Jo was supported in the field survey by Jon Moore MSc BSc (Hons). Jon is a full member of the Chartered Institute of Ecology and Environmental Management and has over 7 years' professional ecology experience. Both surveyors are registered to use survey licences for bats and great crested newts.

### 2.1 Desk Study

Thames Valley Environmental Records Centre (TVERC) was contacted for records of protected species and sites of nature conservation value within a 2 km search area, centred on the Site.

In addition, Ordnance Survey maps and online aerial photos were used to provide site context and the online Multi Agency Geographical Information Centre<sup>1</sup> (MAGIC) was used to identify any internationally protected areas within 5 km of the Site. Planning applications for developments in the local area have also been searched to identify further data relevant to the Site. This has included an Environmental Statement for an approved application known as 'Land at Whitelands Farm' (06/00967/OUT) which included the Site in its ecological surveys and another consented application for a similar scheme at the Site 07/01106/OUT

### 2.2 Extended Phase 1 Habitat Survey

A Phase 1 Habitat Survey was undertaken at the Site on the 2<sup>nd</sup> May 2017 to identify and map the habitats present following published criteria<sup>2</sup>.

In addition to basic Phase 1 Habitat mapping, the Site was assessed to identify whether it includes any Habitats of Principal Importance (HPI) or is suitable to support Species of Principal Importance (SPI)<sup>3</sup>, or other notable or legally protected species.

### 2.3 Hedgerow Assessment

This report has been prepared to support a planning application, and therefore there is no legal requirement for undertaking a Hedgerow Regulations assessment; removal of hedgerows is considered permitted under the legislation if the removal is part of a planning consent. However, this is a useful tool for identifying features of value within a site. Each hedgerow within the Site was assessed against the ecology criteria for 'important' hedgerows following the method set out in The Hedgerow Regulations 1997. **The assessment did not include an historical assessment of the hedgerows, which should be considered separately.**

<sup>1</sup> <http://magic.defra.gov.uk/>

<sup>2</sup> JNCC (2010) *Handbook for Phase 1 habitat survey - a technique for environmental audit*

<sup>3</sup> HPI and SPI are habitats and species listed in Section 41 of the Natural Environment and Rural Communities Act 2006 and regarded as the highest conservation priorities in the UK. HPI and SPI are material consideration in planning.

## 2.4 Bat Tree Assessment

All trees within or adjacent to the Site (where access was possible) were assessed for their suitability to support roosting bats. Trees which could potentially support bats were subject to a detailed examination with binoculars. As there were a number of trees, and a plan with tree locations could not be provided at the time of the survey, individual trees were not assessed, but groups of trees supporting one or more specimens suitable for roosting bats were recorded.

## 2.5 Great Crested Newt Pond HSI

A Habitat Suitability Index<sup>4</sup> (HSI) score was calculated for two ponds adjacent to the Site.

The calculated HSI for a pond provides a score between 0 and 1. The pond's HSI can then be compared to the ranges of pond suitability, as shown in the table below. An inference can then be made between the HSI of a pond, and the likelihood of great crested newt presence.

**Table 1**  
**HSI scores and suitability of ponds for GCN**

HSI Score	Classification	Proportion of Ponds Occupied by Great Crested Newts
<0.5	Poor	0.03
0.5 – 0.59	below average	0.20
0.6 – 0.69	Average	0.55
0.7 – 0.79	Good	0.79
> 0.8	Excellent	0.93

## 2.6 Constraints

Any ecology assessment must be considered as a 'snapshot' of the site conditions at the time of the survey; not all botanical species or communities would have been evident during the survey.

Notwithstanding this, given the agriculturally managed nature of the Site, the findings of the survey are considered to provide an appropriate assessment of the Site's ecological value.

Ecological constraints will change over time and therefore the findings of this report is considered to be valid for a period of one year, after which the report should be reviewed to assess whether the survey should be updated.

<sup>4</sup> Oldham, R.S., Keeble, J., Swan, M.J.S., & Jeffcote, M. (2000) *Evaluating the Suitability of Habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10: 143-155.

### 3 Results

#### 3.1 Desk Study

TVERC data has not yet been received. This report will be updated and re-issued when the data is available.

Only one statutory designated wildlife site occurs within the search area (2 km for local and national sites, 5 km for international sites): Bure Park Local Nature Reserve. The includes grass meadow, young broad-leaved woodland, hedges and scrub. A small river (the Bure) runs through the Site, feeding a small pond which is home to great crested newts. A balancing pond at one end of the Reserve is fed by run-off from the area. Bure Park is 1.8 km north of the Site, on the far side of Banbury.

Bicester Wetland Reserve, a private reserve owned by Thames Water is 280 m south-east of the Site. The reserve includes scrapes, pools and ditches and is managed principally for wetland birds. Other local sites are likely to be identified in the desk-study.

#### 3.2 Surrounding Area

The Site is situated within a mixed landscape. To the immediate north of the Site is a new supermarket, beyond which is the town of Bicester. To the south there is a shopping complex including a garden centre and to the south east is a water treatment works (and the wetland reserve). Further south east are pasture fields and a military base. To the west of the Site is a large new housing development mostly on former arable fields.

Plate 1, an aerial photograph of the Site, shows the Site in context with the surrounding landscape. Note that this landscape has changed since the image was taken and does not include the housing estate to the west or the supermarket to the north.

**Plate 1**  
**Aerial Photograph**



### 3.3 Site Habitats

The Site is approximately 12 ha and largely comprises an arable field which was seeded with grass for hay or silage at the time of survey. There is one habitat within the Site which is a species of principal importance - hedgerows.

The Site comprises:

- An arable field.
- Arable margins.
- Hedgerows.
- Trees.
- Ditches.
- Log piles.

A list of all species recorded with their Latin names is included in Appendix 2 (Table 3) and a Phase 1 Habitat Plan in Appendix 3.

#### 3.3.1 Improved grassland

**Phase 1 Habitat Survey type:** Arable

**Habitat of Principal Importance (HPI) present:** No.

**Management:** regular agricultural management.

The majority of the Site is an arable field. At the time of the survey it was under a grass crop (principally perennial rye-grass).

There were no forbs recorded within the sward, except at the margins (see below).

Part of the Site (in the south-west) can be seen on aerial photos as a rough grassland, but this has been incorporated into the arable field.

**Plate 2**  
**Semi-improved grassland**



#### 3.3.2 Field margins

**Phase 1 Habitat survey type:** Poor semi-improved grassland.

**HPI:** No.

**Management:** Annual mowing, probable spraying.

The grass field margins are approximately 2 m wide in the north east and south west of the site, but almost absent from the south (along hedgerow 3 and 4). The field margins do not qualify as the Habitat of Principal Importance 'arable field margins' as they are not deliberately created and managed for wildlife.

The grassland is dominated by meadow fescue and includes a range of common flowering species such as lesser burdock, spear thistle and cleavers. The margins of the area recently taken into arable management is more diverse and includes species associated with woodlands and hedgerows such as Lords-and-Ladies and cow parsley. In the north east of the Site the margins include an unusual amount of comfrey.

**Plate 3**  
**Arable margin**



### 3.3.3 Hedgerows

**Phase 1 Habitat survey type:** species rich and species poor intact hedgerows and species poor defunct hedgerows.

**HPI:** Yes.

**Management:** mixed.

Most of the field boundaries with shrubs are no longer managed as hedgerows and could be considered to be tree lines. Most are species poor, but one (Hedgerow 4) has five woody hedge species and a further three as taller standard trees. Under woody species and associated features this hedge qualifies as important under the hedgerow regulations.

Details of the hedges are included in Appendix 2, Table 5 and 6.

### 3.3.4 Trees

**Phase 1 Habitat Survey type:** Scattered trees

**HPI:** No.

**Management:** None.

Within the Site are tree lines formed of former hedgerows and standard trees in hedges. Trees and tree groups are described in more detail in Appendix 2, Table 5.

Some of these are suitable for roosting bats, such as the pollarded willow pictured, which has a large hollow at the base, creating a cavity.

**Plate 4  
Hedgerow 4**



**Plate 5  
Willow (G4)**



### 3.3.5 Ditches

**Phase 1 Habitat Survey type:** Running water, swamp and marginal vegetation.

**HPI:** yes (swamp).

**Management:** Varied.

Ditches 1 and 2 include patches of standing water and wet mud. At the juncture of Ditch 2 and D3 is a stream (off site). Ditch 1 is the most biodiverse area of the Site.

Aquatic and semi-aquatic vegetation within the ditches includes water-crowfoot, water-plantain, water-starwort, common duckweed and brooklime. Hard rush, marsh horsetail and bulrush were recorded in dryer areas.

The bankside vegetation includes creeping bent, lords-and-ladies, white bryony and rosebay willowherb.

Ditch 1 has historically been tree-lined, but was cleared when the arable field was extended.

### 3.3.6 Log pile

**Phase 1 Habitat Survey type:** n/a

**HPI:** No.

**Management:** N/A

Two large piles of wood, which appear to comprise trees felled from clearance of bank side vegetation.

**Plate 6  
Ditch**



**Plate 7  
Log pile**



### 3.3.7 Bare or disturbed ground and earth banks

**Phase 1 Habitat Survey type:** spoil, bare ground

**HPI:** No.

**Management:** N/A

There is a spoil heap in the north west of the site and an earth bank that forms a boundary between the new supermarket and the Site.

The banks are likely to have been grass seeded, but also include colonising species present in the spoil heap and disturbed areas such as cleavers and bristly oxtongue as well as wild mignonette, white campion and charlock.

**Plate 8**  
**Spoil heap**



## 3.4 Species

### 3.4.1 Invertebrates

**Protected / Species of Principal Importance (SPI):** some are, but unlikely to be present.

The Site's terrestrial habitats are common and widespread, with the agricultural crop believed to be subject to regular herbicide and pesticide spraying. They are therefore unlikely to support species or a range of invertebrate fauna which is of conservation importance.

### 3.4.2 Amphibians

**Protected / SPI:** Some are, and may be present.

Great crested newts are a European Protected Species (EPS). The newts can travel some distance from their breeding pond. It is best practice to consider whether ponds within 500 m of a development site may support a breeding population of newts, in order to assess the likely risk of harm to newts if they occur on terrestrial habitat at the Site.

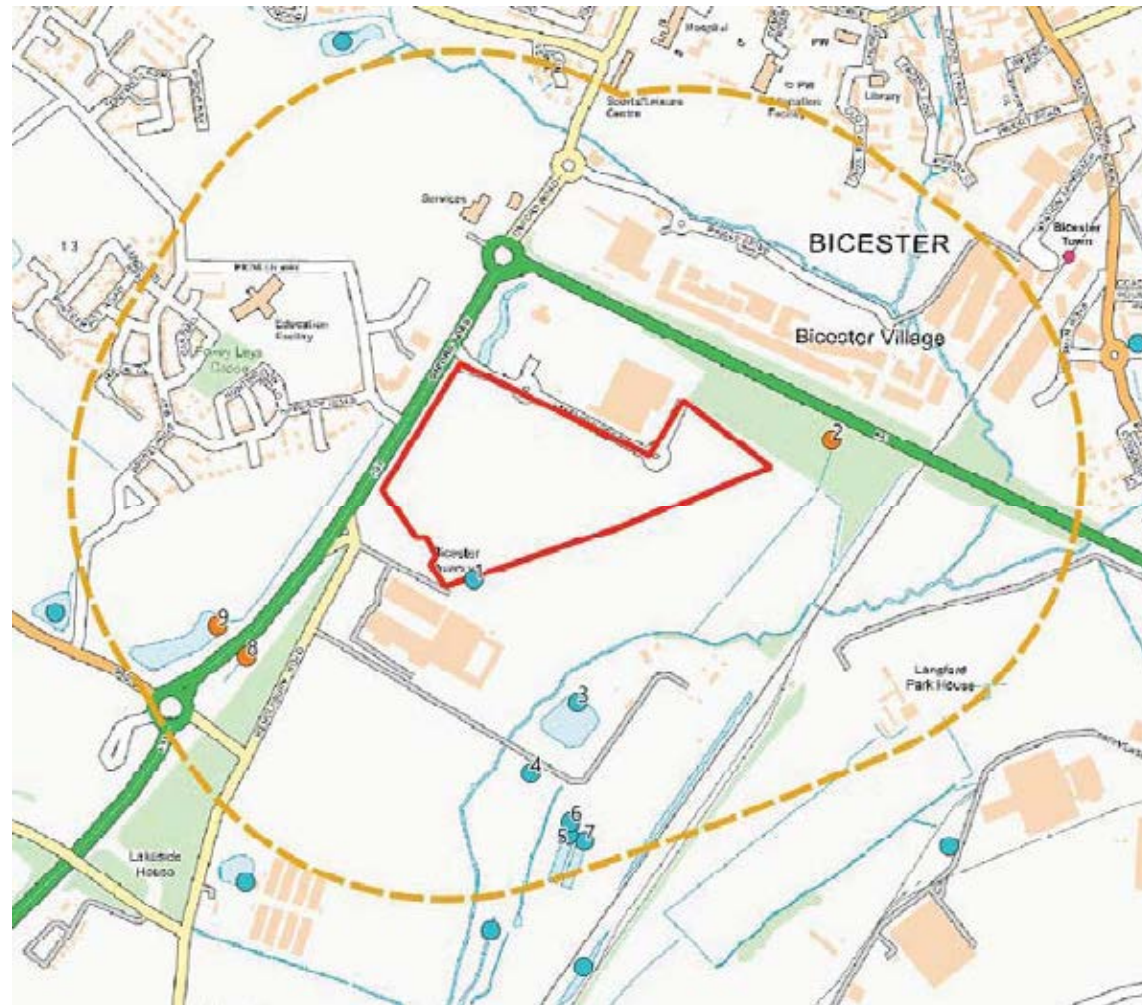
Ordinance survey mapping, aerial photos and the site visit were used to identify the presence of ponds within 500 m of the Site. Nine ponds were located (See Plan 1 below).

Pond 1 is immediately adjacent to the Site, it is located within the garden centre and its overflow feeds Ditch 1. Pond 1 scores 0.79 in the HSI (good quality for great crested newts). Pond 2 is a water attenuation pond in an unmanaged field north of the Site. The pond was dry at the time of survey and appears to rarely hold water (based on the vegetation growing within it). Ponds 3,5,6 and 7 are part of the water treatment processes at the Thames Water site. These were not viewed for this survey, but are unlikely to be suitable for newts. Pond 4 is a series of connected ditches and scrapes at the Bicester Wetland Nature Reserve. This feature was not surveyed fully, but observed by binoculars. It has a HSI score of 0.53 (below average quality for great crested newts. Ponds 8 and 9 are new attenuations ponds associated with the development to the west; the former is for road runoff from the new road access and the latter appears to be in what will be public open space. Neither held water at the time of survey, although Pond 9 does have emergent plants indicating it is wet or at least damp for some of the year. HSI data is included in Appendix 2, Table 4.

The HSI survey was undertaken at a time of year when newts lay eggs, but none were observed during the survey.



**Plan 1  
Pond Locations**



**3.4.3 Reptiles**

**Protected / SPI:** Yes and possibly present.

The Site's rough field margins and hedgerows are suitable for common lizard *Zootoca vivipara* and slow worm *Anguis fragilis*. All British reptiles are protected from killing or injury (but their habitat is not specially protected) and are SPI. The majority of the Site (the crop) is considered to be of very limited value to reptiles due to the monoculture of the field and lack of basking areas. It is possible that some reptiles are present in the rough vegetation at the boundaries and the log piles, however, it is considered unlikely that there is a significant population present.

The Site may therefore support a small population of common lizard and/or slow worm. Grass snakes may hunt within the Site as part of a much wider home range.

**3.4.4 Birds**

**Protected / SPI:** Some are, and are likely to be present.

The hedgerows and trees provide opportunities for birds to nest on the Site. As well as more common birds, several skylark *Alauda arvensis* were also observed singing above the Site – there may be four or more active nests. A single song thrush *Turdus philomelos* was also recorded.

Whilst some red and amber list species are present on Site, the breeding assemblage is not likely to be anything other than typical of the habitats present in the geographic location.

**3.4.5 Dormouse**

**Protected / SPI:** Unlikely to be present.

Dormice are protected under international legislation. They inhabit hedges, woodland, scrub and sometimes ruderal vegetation. Although the Site includes some of these habitats, typically the species is found in areas of extensive woodland. The Site is poorly connected to woodland and it is considered that dormouse are unlikely to occur at the Site.

**3.4.6 Badgers**

**Protected / SPI:** Yes.

A number of rabbit warrens were recorded around the Site, under hedgerows. A single larger mammal hole was also recorded. The spoil contained rabbit fur and droppings, and there were rabbit droppings in the entrance. However, the entrance tunnel was of a size and shape typical of badgers. It is possible that this is an outlier sett that is not currently occupied by badgers.

No further evidence of badger was observed on the Site or within 30 m of the Site boundary.

**3.4.7 Riparian mammals**

The Site's ditches do not hold sufficient water to support a water vole population. Although dry ditches may be used by otters moving between rivers or to foraging areas, the Site is not close to major river systems. Otters and water vole are unlikely to occur at the Site.

**3.4.8 Bats**

**Protected / SPI:** Possible roosting and foraging.

Foraging and commuting

Although the main body of the Site will be of limited value to bats, the hedgerows and trees are likely to be used by a number of foraging bats. Bat are also likely to use the Site as a route to move across the landscape, for example between roosts in Bicester and foraging at the Bicester Wetland Reserve. The Site is considered to be of medium value to bats according to Bat Conservation Trust classification (Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water – see Appendix 2, Table 2.)

### Roosting

### Trees

A number of trees were recorded that are suitable for roosting bats (see Appendix 2). These include individual trees on most of the site boundaries.

## **4 Assessment**

Relevant legislation and national planning policy is provided in Appendix 1.

### **4.1 Development Proposals and Possible Impacts**

The proposals are to develop the Site into business centre with 11 office blocks, a lake and associated car parking.

Vehicle access to the Site will be made from existing access points constructed with the new supermarket; all boundary hedges and trees can be retained within the scheme.

All of the Site's arable land and arable margins are likely to be removed.

The proposals include the creation of a new lake.

### **4.2 Potential Effects for Consideration**

The following section will address what is relevant for consideration within the forthcoming Environmental Impact Assessment.

The Site as a whole is not of sufficient intrinsic ecological value to warrant whole-scale protection from development; the majority of the Site's habitats which will be affected by the proposal are common and widespread and are considered to be of low intrinsic biodiversity value.

Features requiring some level of further consideration, which may lead to a requirement for mitigation or compensation, are:

- The Bicester Wetland Nature Reserve
- Ditches
- Great crested newts
- Reptiles
- Birds
- Bats
- Badgers

#### **4.2.1 Bicester Wetland Nature Reserve**

The EIA will need to consider whether the reserve is hydrologically connected to the Site and therefore whether additional measures will be required during construction and operation to ensure that it is not impacted e.g. through pollution.

#### **4.2.2 Habitat Loss**

The proposed construction on the Site will lead to the loss of Ditch 1, which supports a number of wetland plants. The EIA will need to assess whether this loss is significant and if habitat improvements within the scheme offset this loss.

#### **4.2.3 Great Crested Newts**

If great crested newts breed in ponds and ditches close to the Site, the proposed works will lead to a loss in terrestrial and breeding habitat (the southern ditch) for great crested newts.

Ponds local to the Site do not appear to have been directly surveyed for great crested newts. Although a Site based terrestrial survey was undertaken in 2006, this is out of date and further surveys will be required to establish whether those ponds and ditches within 250 m support a crested newt population. The survey season for full pond surveys is mid-March to mid-June, with half of the visits between mid-April and mid-May. This will not be feasible this season, and so an eDNA survey will be more appropriate. This can be undertaken to the end of June, but will only provide a present or absent result, not the size of any population detected.

As the majority of the terrestrial newt habitat within the Site is of low value to newts and a reasonable area is available for mitigation (in undevelopable flood plain) a comprehensive mitigation plan can be put together based on the presence / absence result by making an assumption that there is a large population present, and basing mitigation on this. Loss of breeding Sites and terrestrial habitat could be compensated for within the Site's landscaping scheme or an off-Site receptor could be used to receive newts from the Site. Natural England's new policies on licence applications have changed the way in which mitigation for newts is considered; the approach is more flexible, allows for data to be accepted that doesn't strictly meet best practice in some cases and is more accepting of off-site solutions.

Of most relevant is Policy 4 – 'Appropriate and relevant surveys where the impacts of development can be confidently predicted'

*Natural England will be expected to ensure that licensing decisions are properly supported by survey information, taking into account industry standards and guidelines. It may, however, accept a lower than standard survey effort where: the costs or delays associated with carrying out standard survey requirements would be disproportionate to the additional certainty that it would bring; the ecological impacts of development can be predicted with sufficient certainty; and mitigation or compensation will ensure that the licensed activity does not detrimentally affect the conservation status of the local population of any EPS.*

It would seem reasonable that the ES for an outline application at the site can therefore be based on the results of eDNA surveys, which would be followed up by further survey (if necessary) prior to reserved matters.

#### **4.2.4 Reptiles**

Reptiles may be present at the Site. However, the areas of habitat in which they may be found is limited. The EIA should address impacts to reptiles, but it would be reasonable to assume that a small population is present, rather than undertake surveys for this species.

#### **4.2.5 Birds**

The EIA will need to address impacts to birds, and specifically skylarks – the only notable species which is likely to suffer habitat loss as part of the project. A survey to better quantify the number of skylark territories would aid the assessment. Although territories are principally established in early spring, skylark have a habit of maintaining their territory through song and so two visits between now and mid July would still be appropriate.

#### **4.2.6 Badgers**

The loss of the possible single outlier sett will not be significant to the local badger population; however badger setts are legally protected and further consideration for mitigation and licencing will be required.

#### **4.2.7 Bats**

Although trees containing bat roosts are unlikely to be felled, indirect effects may occur due to habitat loss, disruption of commuting routes and lighting.

In order to assess the impact of the scheme, further surveys to quantify bats' use of the Site for commuting and foraging should be undertaken (activity surveys). Where trees are at risk of more direct effects, such as lighting, more detailed tree surveys should be completed.

Following best practice, activity surveys would comprise identifying two transect routes which are walked with bat detectors once per month through the active season. In this case we would undertake surveys between May and September, including one dusk and pre-dawn survey. At each survey period four static bat detectors would be left in suitable locations to record bat activity over at least five continuous nights. After the first three sets of surveys are undertaken, we will review the activity recorded and re-assess whether a whole year's survey is required for this assessment – by then the scheme design will have been further developed, and impacts to bats may have been designed out of the scheme, or we may have demonstrated that the Site is not important for bats.

Tree surveys would involve assessing where impacts to bats are most likely and targeting trees in these areas with a more detailed ground based inspection and, where appropriate, climbing the trees to closely assess features for evidence of bats.

## Appendix 1 - Relevant English Legislation, Policy and Guidance<sup>5</sup>

### Legislation

The Natural Environment & Rural Communities (NERC) Act 2006 places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.

#### Common Reptiles

In Britain there are four relatively widespread native species of reptile - adder, grass snake, common lizard and slow worm. These species are protected via part of Section 9(1) of the Wildlife & Countryside Act 1981 (as amended) against:

- Intentional killing and injuring
- Selling, offering or exposing for sale.

#### Nesting Birds

All wild bird nests are protected under The Wildlife and Countryside Act 1981 (as amended), making it an offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 of the Act, or its dependent young while it is nesting.

#### Great Crested Newts

Great crested newts are 'European Protected Species (EPS) and are protected under the Conservation of Habitats and Species Regulations 2010, and the Wildlife and Countryside Act 1981, as amended by the Countryside & Rights of Way Act 2000. These pieces of legislation combine to give substantial protection to great crested newts and their breeding ponds and terrestrial habitat, making it an offence to:

- Deliberately capture, injure or kill a great crested newt.
- Intentionally or recklessly disturb<sup>6</sup> a great crested newt in a structure or place that they use for shelter or protection or deliberately disturb a group of a great crested newts.
- Damage or destroy a great crested newt resting place/shelter (even if they are not occupying it at the time).
- Possess or advertise/sell/exchange a great crested newt (dead or alive) or any part of a great crested newt (including eggs and all lifestages).

<sup>5</sup> This legal information is an outline only and intended for general information only. Consult the original legal documents and/or seek legal advice for definitive information.

<sup>6</sup> Disturbance, includes 'in particular any action which impairs the ability of animals to survive, breed, rear their young, hibernate or migrate (where relevant); or which affects significantly the local distribution or abundance of the species'.

- Intentionally or recklessly obstruct access to a great crested newt resting place/shelter.

The Natural Environment & Rural Communities (NERC) Act 2006 places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.

#### Bats

All species of bat in Britain are 'European Protected Species' (EPS) and are protected under the Conservation of Habitats and Species Regulations 2010, and the Wildlife and Countryside Act 1981, as amended by the Countryside & Rights of Way Act 2000. These pieces of legislation combine to give substantial protection to EPS and their habitats, making it an offence to:

- Deliberately capture, injure or kill a bat.
- Intentionally or recklessly disturb<sup>7</sup> a bat in its roost or deliberately disturb a group of bats.
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time).
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat.
- Intentionally or recklessly obstruct access to a bat roost.

The Natural Environment & Rural Communities (NERC) Act 2006 places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.

#### Badgers

Badgers are protected in the UK under the Protection of Badgers Act (1992), making it an offence to:

- Kill, injure or take a badger;
- Intentionally or recklessly interfere with a badger sett.

Sett interference includes damaging, destroying or obstructing access to a sett and disturbing badgers while they occupy a sett.

#### Policy

##### National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by:

<sup>7</sup> Disturbance, includes 'in particular any action which impairs the ability of animals to survive, breed, rear their young, hibernate or migrate (where relevant); or which affects significantly the local distribution or abundance of the species'.

- Recognising the wider benefits of ecosystem services.
- Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

Other key principles of the NPPF relating to biodiversity are:

- The conservation of International and National statutorily designated sites.
- Protection of ancient woodland and veteran trees.
- The creation, protection, enhancement and management of networks of biodiversity and green infrastructure.
- The preservation, restoration and recreation of priority habitats and ecological networks.
- The recovery of priority species populations.

**Habitats and species of principal importance**

The NERC Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list replaces the UK Biodiversity Action Plans (UKBAP) and has been drawn up in consultation with Natural England, as required by the Act.

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Habitats of principal importance

Fifty-six habitats of principal importance (HPI) are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. Of most relevance to the Site, they include ponds, open mosaic habitats on previously developed land and lowland heathland.

Species of principal importance

There are 943 species of principal importance (SPI) included on the S41 list. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework.

**Table 2**  
**BCT Roost Assessment Criteria<sup>8</sup>**

<i>Suitability</i>	<i>Description of Roosting habitats</i>	<i>Commuting and foraging habitats</i>
Negligible	Negligible habitat features on site likely to be used roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by another habitat.  Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat, but unlikely to support a roost of high conservation status <sup>9</sup> .	Continuous habitat connected with the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions’ and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

<sup>8</sup> From Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3<sup>rd</sup> edn). The Bat Conservation Trust, London

<sup>9</sup> With respect to roost type only - the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed.

**Appendix 2 – Survey Data**

**Table 3  
Botanical Species List**

		Field Boundaries	Grassland	Ditches	Bare Ground / Disturbed
<i>Agrostis stolonifera</i>	Creeping Bent			R	
<i>Alisma plantago-aquatica</i>	Water-plantain			R	
<i>Anthriscus sylvestris</i>	Cow Parsley	LD			
<i>Arctium minus</i>	Lesser Burdock	R			O
<i>Arum maculatum</i>	Lords-and-Ladies	O	R	R	
<i>Bryonia dioica</i>	White Bryony			R	
<i>Callitriche sp.</i>	Water-starwort			LD	
<i>Cerastium fontanum</i>	Common Mouse-ear				R
<i>Chamerion angustifolium</i>	Rosebay Willowherb			R	
<i>Cirsium vulgare</i>	Spear Thistle	R		R	R
<i>Equisetum palustre</i>	Marsh Horsetail			O	
<i>Festuca pratensis</i>	Meadow Fescue	O			
<i>Galium aparine</i>	Cleavers	O			R
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	O			R
<i>Juncus inflexus</i>	Hard Rush			R	
<i>Lamium album</i>	White Dead-nettle	O			R
<i>Lemna minor</i>	Common Duckweed			R	
<i>Lolium perenne</i>	Perennial Rye-grass		F	O	
<i>Myosotis arvensis</i>	Field Forget-me-not	O			R
<i>Picris echioides</i>	Bristly Oxtongue	R		R	R
<i>Plantago major</i>	Greater Plantain				R
<i>Poa pratensis</i>	Smooth Meadow-grass			F	O
<i>Poa trivialis</i>	Rough Meadow-grass		F		
<i>Ranunculus sp.</i>	Water-crowfoot			LD	
<i>Ranunculus ficaria</i>	Lesser Celandine			R	
<i>Ranunculus repens</i>	Creeping Buttercup			R	
<i>Reseda lutea</i>	Wild Mignonette				R
<i>Rorippa nasturtium-aquaticum</i>	Water-cress			LD	
<i>Sambucus nigra</i>	Elder			R	
<i>Silene latifolia</i>	White Champion				R
<i>Sinapis arvensis</i>	Charlock				R
<i>Sisymbrium officinale</i>	Hedge Mustard	O			A

<i>Stachys arvensis</i>	Field Woundwort	R			
<i>Symphytum officinale</i>	Common Comfrey	R			
<i>Taraxacum officinale</i>	Dandelion				R
<i>Tussilago farfara</i>	Colt's-foot				R
<i>Typha sp.</i>	Bulrush			LD	
<i>Urtica dioica</i>	Common Nettle	LD	R		R
<i>Veronica beccabunga</i>	Brooklime			R	
<i>Veronica persica</i>	Common field speedwell				
DAFOR scale		Dominant, Abundant, Frequent, Occasional, Rare (L = locally)			

**Table 4  
Pond HSI**

Pond ref	Pond 1	Pond 4
S11 - Location	1.00	1.00
S12 - Pond area	0.90	0.94
S13 - Pond drying	0.90	0.50
S14 - Water quality	1.00	1.00
S14 - Shade	1.00	1.00
S16 - Fowl	0.67	0.01
S17 - Fish	0.67	0.67
S18 - Ponds	1.00	1.00
S19 – Terrestrial habitat	0.67	1.00
S110 - Macrophytes	0.41	1.00
HSI	0.79	0.56
	Good	Below average

**Table 5  
Hedgerow and Tree Group Descriptions**

ID	Species	Tree Age	Bat roost features present	Bat roost suitability <sup>10</sup>	Comments
G1	Elmus sp., hawthorn, sycamore, ash, salix sp., field maple	Immature	Ivy only	N to L	Opportunities for single bats behind thick stemmed ivy.
H1	Elmus sp., hawthorn, blackthorn, elder	-	-	-	Managed. Two parallel hedges. Gappy with new planting in gaps.
H1 standards	Ash	Early mature	Ivy only	1 x N, 1 x L	Two hedgerow standards. Opportunities for single bats behind thick stemmed ivy.
H2	Hawthorn, elder, goat willow	-	-	-	Unmanaged hedgerow.
H2 standards	Oak	Mature to over mature	Splits, wound holes	M to H	Upper canopies not inspectable due to foliage.
B1	Soil bund (see Jo's results)	-	-	-	Vegetated soil bund. Managed (sprayed and strimmed) on aspect facing Tesco. Weeds and grasses on aspect facing site.
G2	White or crack willow, goat willow, ash, elder, hawthorn, Prunus sp., field maple	Immature to early mature	Wound holes	N to L	Wound holes in older trees for single bats.
G3	White or crack willow, goat willow, hawthorn, elder	Immature to early mature	None	N	Multiple groups of trees beside drain.
H3	Blackthorn, hawthorn, elder	-	-	-	Unmanaged hedgerow. No standards.
H4	Hawthorn, elder, crab apple, blackthorn, ash	-	-	-	Unmanaged hedgerow.

ID	Species	Tree Age	Bat roost features present	Bat roost suitability <sup>10</sup>	Comments
H4 standards	Elmus sp., ash, crack willow, Populus sp.,	Immature to mature	Splits, wound holes, thick ivy stems	N to M	Limited to one crack willow tree.
G4	White or crack willow, ash	Early mature to mature	Splits, wound holes	L to M	Pollarded willow - large hollow in base. 2nd willow with wound holes and splits.
G5	Field maple, hazel, ash, oak, hawthorn, cherry species, crab apple, elder	Immature to mature	Wound holes, splits	N to M	1 x mature oak - no features noted but of an age to support features and foliage covering upper crown hindering inspection. 1 x mature ash with numerous wound holes and splits.

<sup>10</sup> Bat roost suitability: N=negligible, L=low, M=medium, H=high, R=roost present

**Table 6  
Hedgerow Regulations Assessment<sup>11</sup>**

Ref	Historical					Protected or rare species			Number of Woody species per 50m			Associated Features							Qualifies as important? <sup>12</sup>
	1	2	3	4	5	a	b	c	5+	6+	7+	a	b	c	d	e	f	g	
H1	U	U	U	U	U	U	U	U	N	N	N	N	N	Y	N	Y	N	N	No
H2	U	U	U	U	U	U	U	U	N	N	N	Y	N	Y	N	Y	Y	N	No
H3	U	U	U	U	U	U	U	U	N	N	N	N	Y	N	N	Y	Y	N	No
H4	U	U	U	U	U	U	U	U	Y	N	N	N	Y	Y	N	Y	Y	N	Yes

**Criteria**

**Historic**

1. Marks a pre-1850 parish or township boundary
2. Incorporates an archaeological feature
3. Is part of or associated with an archaeological site
4. Marks the boundary of or is associated with a pre-1600 estate or manor
5. Forms an integral part of a pre- Parliamentary enclosure field system

**Protected or rare species**

6. Contains certain categories of animals or plants:
  - a) Wildlife and Countryside Act Schedule 1 birds / Schedule 5 animals
  - b) Declining breeder (category 3) in "Red Data Birds"
  - c) Categorized as "endangered", "extinct", "rare" or "vulnerable" in Britain

**Woody Species**

7. Includes:
  - a) At least 7 woody species, on average, in a 30 m length
  - b) At least 6 woody species, on average, in a 30 m length and has three associated features
  - c) At least 6 woody species, on average, in a 30 m length, including a black-poplar tree, or large-leaved lime, or small-leaved lime, or wild service-tree
  - d) At least 5 woody species, on average, in a 30 m length and has at least 4 associated features

**Associated features are:**

- a) A bank or wall supporting the hedgerow
- b) Less than 10% gaps
- c) On average, at least one tree per 50 metres
- d) At least 3 species from a list of 57 woodland plants
- e) A ditch
- f) A number of connections with other hedgerows, ponds or woodland
- g) A parallel hedge within 15 m

<sup>11</sup> U=unknown, N=no, Y=yes

<sup>12</sup> Under woody species and associated features only

**Appendix 4 – Figures and Target Notes**

Target Notes	
No.	Description
1	Arable field in location that aerial photo implies was rough grassland.
2	Large log piles crated from clearance of this area of site and ditch banks
3	Large single mammal hole, likely outlier badger sett not currently occupied by badgers
4	Spoil heap and area of disturbed ground



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Appendix 3 – Phase 1 Environmental Risk Assessment



Revision	Description	Issued by	Date	Checked
00	FINAL	GP	11/05/2017	RF / JW

O:\036269 Project Bicester Business Park Due Diligence\F9 Ground Engineering - Site Investigation\03 Reports\170511 GP 036269 Phase I Environmental Risk Assessment 00.docx

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Author **Geoffrey Perrett**

Approved **John Waiting**

Signature 

Date **11<sup>th</sup> May 2017**

## **Bicester Office Park**

### **Phase I Environmental Risk Assessment**

**036269**

11 May 2017

Revision 00

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## Executive Summary

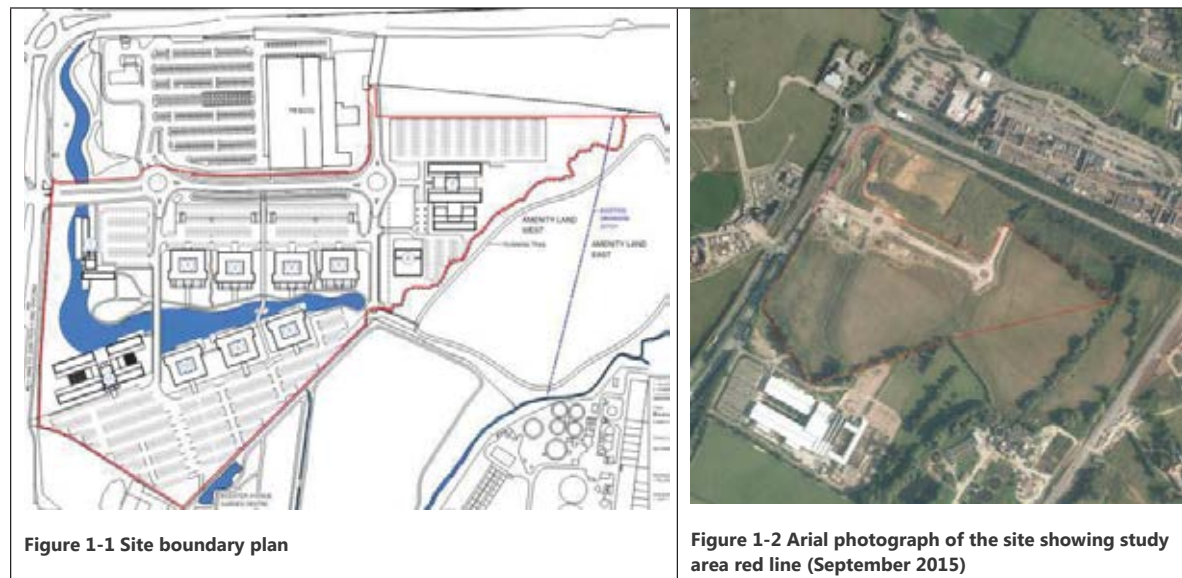
<b>Background</b>	BuroHappold Engineering was commissioned by Scenic Land Development to carry out a geoenvironmental desk study and Flood Risk Appraisal of the site referred to as Bicester Office Park and located at Lakeview Drive, Bicester.
<b>Environmental Setting</b>	<p>The site is located adjacent to the south of the main conurbation of Bicester. Access to the site is from the west along an access road with a bund to the south of the road. The majority of the site is south and east of the access road and comprises open agricultural land. There was both evidence of grazing (fencing) and cultivation (shallow plough ruts). The proposed development comprises a new commercial development with associated car parking and landscaping.</p> <p>Adjacent to the north of the access road is a new Tesco superstore, in the north east of this superstore development is a petrol station. Another petrol station (Esso) is located 75m north east (c.200m from centre of site). The south east boundary of the site continues into farmland, with a drainage channel / small stream running south in this area. This stream enters a larger watercourse and continues to flow south. Further east (50m from site) is a mainline railway, 200m south is a sewage treatment works. In the central and southern areas of the site is a line of manhole covers, these appear to flow to the sewage treatment works. Around some of the manhole covers were wet wipes, indicating that these locations have been blocked and cleared out (and possibly overflowed).</p> <p>Although the site is not within a Source Protection Zone (SPZ), there are four groundwater abstraction licences within 1000m of the site. The nearest is 210m north east, at the petrol station, for pollution remediation, application number WRW/A/1145. The licence is due to expire in 2018. It is assumed that this licence relates to a pollution incident in 2003 classed as Category 4 (no impact). No further information has been provided on either the abstraction or the pollution incident.</p>
<b>Geoenvironmental Considerations</b>	The site, historically and presently, is open agricultural land. In recent years (since 2014), the land adjacent to the north has been developed as a food superstore with a petrol forecourt, another petrol forecourt is located 100m north west. The further petrol station appears to have been subject to voluntary remediation, this is assumed to be for a fuel leak to ground (unconfirmed). A sewage treatment works is located 200m south east of the site. A series of manholes showing the path of the trunk sewer, intersect the site leading to the sewage treatment works. There is evidence that the sewers block and possibly overflow (wet wipes around manhole covers). As part of a site investigation for the design of the trunk sewers, four samples were taken for chemical analysis. Although no interpretation was completed in the investigation, this report has screened the results against S4UL values. No samples exceed residential or commercial thresholds.
<b>Geoenvironmental Risk Assessment</b>	<p>There is a moderate / low risk to future site users from faecal matter, asbestos and metals from inhalation and ingestion.</p> <p>There is a moderate / low risk to construction and investigation workers from faecal matter, asbestos and metals from inhalation and ingestion.</p> <p>There is a moderate / low risk to site neighbours from asbestos and metals through dust generation and inhalation.</p>
<b>Flood Risk Appraisal</b>	Part of the site lies within a designated flood zone, the hydrology is understood and the current masterplan has designated land uses that are commensurate with the zone classifications. A revised planning application will need a new flood risk assessment but the constraints posed by the flood risk consideration should be met with standard design solutions.
<b>Conclusions and Recommendations</b>	<p>The risk is considered suitably low that no exceptional costs associated with ground remediation are likely to be realised for the proposed development, therefore no further investigation is required for an outline planning application. During construction standard practice such as welfare facilities, good housekeeping, contamination watching brief and PPE should be adopted.</p> <p>Notwithstanding the above, a site investigation will be required to discharge relevant planning conditions. This will need to assess the geoenvironmental risks associated with the construction of the proposed structures. This investigation will be used to confirm and quantify the potential risks (if any) to site neighbours and future site users and will inform the need for any mitigation or remediation requirements.</p>

# 1 Introduction

## 1.1 General

BuroHappold Engineering was commissioned by Scenic Land Development, to carry out a geoenvironmental desk study and Flood Risk Appraisal of the site referred to as Bicester Office Park and located at Lakeview Drive, Bicester, OX26 1DE centred on the grid reference 457807 221589.

The site is predominantly agricultural land located adjacent to the south of the main conurbation of Bicester, shown by Figure 1-1 and Figure 1-2 below. The proposed development comprises 11no. commercial units with associated car parking and landscaping.



## 1.2 Study Aims and Objectives

The overall aim of this study was to carry out a geoenvironmental risk assessment and flood risk appraisal of the site in order to inform the Client’s understanding of potential ground-related risks to meet planning requirements.

In relation to ground contamination, this report will provide information relevant to development in accordance with the requirements of the National Planning Policy Framework (NPPF) [1]. The work was carried out in general accordance with the Environment Agency / Department for Environment, Food and Rural Affairs (DEFRA) Model Procedures [2], the relevant British Standard [3], the Environment Agency Guiding Principles [4], Groundwater Protection Policy [5] and other current good practice guidance. The particular objectives were:

- To determine the historical and current use of the site and its surroundings;
- To determine the nature of the ground conditions and the environmental sensitivity of the site;
- To assess the potential location, nature and extent of any ground and groundwater contamination;
- To assess the potential risks to people and the environment (natural and built) associated with ground contamination (solid, liquid or gas) both in the site’s existing condition and for the future use;

- To make an initial assessment of any potential flood risk constraints or considerations;
- To construct an Initial Conceptual Model and carry out a preliminary contaminated land risk assessment, in general accordance with the EA/DEFRA Model Procedures for the management of land contamination [2];
- To prepare a report based upon all of the above suitable to support a future planning application in accordance with NPPF [1] and meet the Client’s due diligence requirements; and
- To evaluate the potential need for and scope of any subsequent site investigations and/or remedial action or design.

## 1.3 Information Sources

The principal sources of information for this desk study report include: historical and current topographic maps and public register information from the Groundsure report (Appendix D); previous site investigation reports (discussed in Section 5); a site walkover survey; and information available from the Environment Agency website and other online sources.

This report is based upon information obtained from third party sources, together with observations from the site walkover survey. The third party data has been accepted as face value and has not been independently verified. BuroHappold can therefore give no warranty, representation or assurance as to the accuracy or completeness of such information.

## 2 Current land use and proposed development

### 2.1 Site Walkover

A site walkover was undertaken on Wednesday 15<sup>th</sup> March 2017. Further details are below and with an annotated aerial photograph as Figure 2-1.

#### 2.1.1 Site Location and Topography

The site is located within the southern conurbation of Bicester. The site is generally flat, with a slight drop to the south and east. The access is along an access road in the west, the south of this access road is bunded (northern boundary of the agricultural fields). This bund is between 1.5m and 2m. A surface inspection of the bund indicates that it is likely constructed with site won material.



Figure 2-1 Annotated aerial photograph (base photograph dated 2015)

#### 2.1.2 Current Site Use

Access to the site is along an access road to the west. In the north, and north of the access road, is a manmade pond with associated landscaping. Along the south of the access road is a 1.5m to 2m high bund (Section 2.1.1). The majority of the site is south and east of the access road and comprises open agricultural land. There was both evidence of grazing (fencing) and cultivation (shallow plough ruts). A drainage channel runs north / south, from the access road to the southern boundary, along the north of the drainage channel – near the access road – is an area used for material storage. This area had plastic and concrete pipework, gravel and wood chippings. Two heaps of wood, comprising tree branches and timber up to 3m high, are in the south of the site. In the central and southern areas of the site is a line of manhole covers (Figure 2-1), these appear to flow to the adjacent sewage treatment works (Section 2.2). Around some of the manhole covers were wet wipes, indicating that these locations have been blocked and cleared out (and possibly overflowed).

One substation is present in the west of the site. Two more are adjacent to the north, associated with the Tesco superstore. These substations appear to be modern (<5 years old) and in good condition.

#### 2.1.3 Invasive Species

No invasive species were observed during the walkover.

### 2.2 Current Activities in the Surrounding Area

Adjacent to the north of the access road is a new Tesco superstore, in the north east of this superstore development is an associated petrol forecourt. Another petrol station (Esso) is located 75m north east (c.200m from centre of site, Section 4.2). Further north of the A41 is a shopping centre (Bicester Designer Outlet Village) with Bicester town beyond. The west of the site is bound by a shallow drainage ditch, with the A41 and a new housing development beyond. The housing development, which is still being constructed, incorporates a hotel, pub/restaurant and series of schools. The south is bound by a continuation of the western drainage ditch, which forms a pond near the southern tip of the site. Beyond this is another shopping centre (Bicester Avenue) with farmland beyond. The south east boundary of the site continues into farmland, with a drainage channel / small stream running south in this area. This stream enters a larger watercourse and continues to flow south. Further east (50m from site) is a mainline railway, 200m south is a sewage treatment works. As mentioned in Section 2.1.2, the sewers present on site flow to the sewage treatment works.

**2.3 Proposed Development**

The proposed development comprises a series of commercial units with associated car parking and landscaping. An extract of the masterplan is presented below with the full drawing in Appendix A

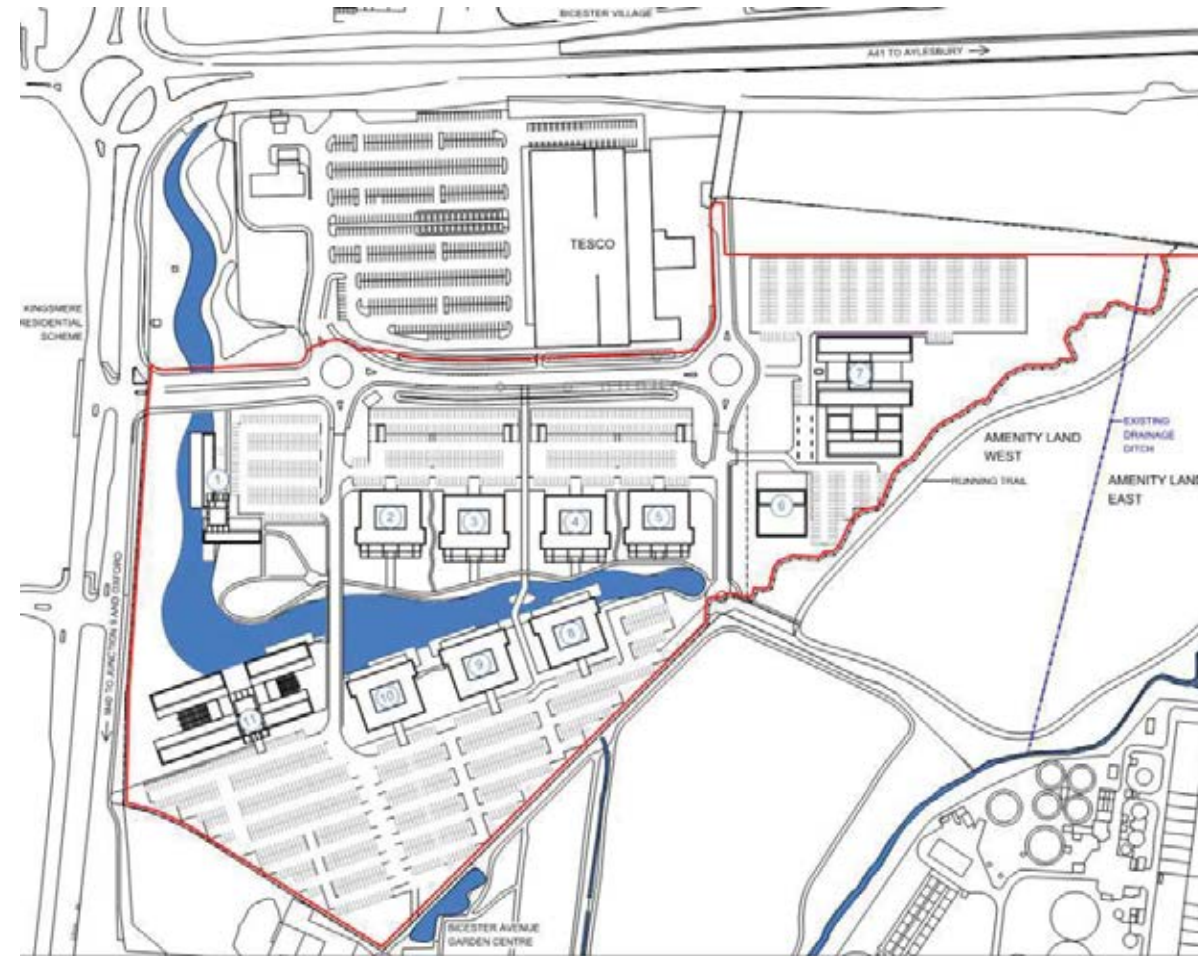


Figure 2-2 Extract of proposed masterplan. Development site includes red line (south) and access road.

**3 Environmental Setting**

**3.1 Geology**

The anticipated site geology is summarised in Table 3-1 - Summary of Anticipated Geology below. This has been determined with reference to the relevant BGS map (1:50,000 series, sheet 219, Buckingham. BGS 2002); BGS borehole logs (Appendix B); the Groundsure report (Appendix D) and historic site investigation data (Section 5).

Table 3-1 - Summary of Anticipated Geology

Strata	Description	Depth to top [Thickness] (m)	Aquifer status
Alluvium	Normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present.	GL [ $<3m$ ]	Secondary
River Terrace Deposits	Sand and gravel, locally with lenses of silt, clay or peat.	GL [ $<3$ ]	Secondary
Kellaways Formation	Siltstone and mudstone.	GL - 3 [2-3]	Unproductive
Cornbrash Formation	Limestone, medium- to fine-grained, generally and characteristically intensely bioturbated and consequently poorly bedded. Generally bluish grey when fresh, but weathers to olive or yellowish brown. (Regionally between 1 to 4m thick)	$<5$ [2]	Secondary
Forest Marble Formation	Silicate-mudstone, greenish grey, variably calcareous. A variety of limestone types occur, of which grey, weathering brown and flaggy, variably sandy medium to coarsely bioclastic grainstone or less commonly, packstone predominates, especially at the base. (Regionally between 2 to 7m thick).	2.5 - $>5$ [7]	Unproductive
White Limestone Formation	A pale grey to off-white or yellowish limestone, peloidal wackestone and packstone with subordinate ooidal and shell fragmental grainstones. (Regionally between 7 and 18m thick)	9 [base not proven]	Principle

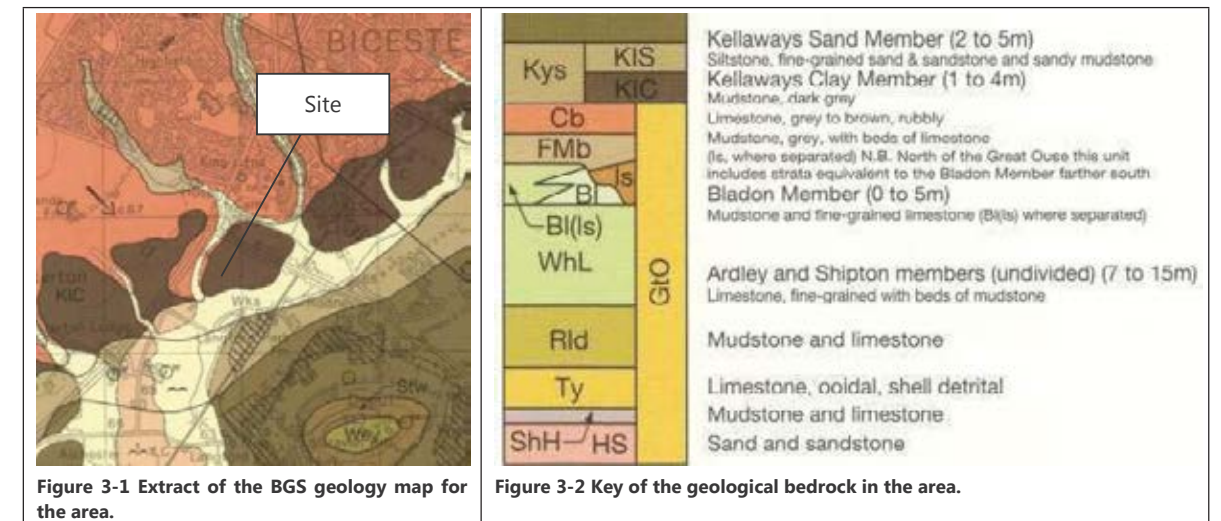


Figure 3-1 Extract of the BGS geology map for the area.

Figure 3-2 Key of the geological bedrock in the area.

### 3.2 Hydrogeology

A secondary aquifer associated with the Alluvium and Cornbrash Formation partially underlies the west of the site. A groundwater abstraction well was advanced in 2016 (Appendix B), this borehole struck water at 8.0m below ground level (bgl), and according to the logs, could not seal it off to depth (45m bgl). The water rose to 1.5m above ground level (artesian). Anecdotal evidence from the design team in BuroHappold suggests that this well was drilled to supply the proposed water feature on site, however after development, the waters still contained sediment and so the well was abandoned.

Although the site is not within a Source Protection Zone (SPZ), there are four groundwater abstractions licences within 1000m of the site. The nearest is 210m north east at the petrol station, for pollution remediation scheme. The application number is WRW/A/1145. The licence is due to expire in 2018. It is assumed that this licence relates to a pollution incident in 2003 (Section 4.2) classed as Category 4 (no impact). No further information has been provided on either the abstraction or the pollution incident. The nearest potable license is 812m south west for Bicester Trailer Park, issued in 1987.

### 3.3 Hydrology and Drainage

No natural surface water features are present on site, however a manmade ditch runs north / south in the west of the site (see Figure 2-1). Adjacent to the south and the east of the site are drainage ditches, as shown in Figure 3-3 as light blue features. These are minor tributaries of the larger river (Lanford Brook – dark blue in Figure 3-3).



Figure 3-3 Extract of GroundSure report of surface water features



Figure 3-4 Extract of GroundSure report showing extent of flooding modelled from the Lanford Brook

A series of manholes were present across the central and southern areas of the site as detailed in Section 8 and present on Figure 2-1. These flow to the sewage treatment works about 200m south of the site.

There are no surface water abstraction licences within 1000m of the site.

### 3.4 Ecology

No areas of ecological protection are within 1000m of the site.

## 4 Site Setting

### 4.1 Site History

The site history and that for the surrounding area has been completed using historic maps from 1880 to 2014. A summary of the history is below with the maps reproduced in full in Appendix D.

#### 4.1.1 On site history

Prior to 1880, the site was agricultural land with field boundaries throughout the site. Of particular interest is the western field boundary, which remained constant throughout the mapping and is now the drainage ditch running through the site. A single, small building was present in the west of the site (Figure 4-1). Prior to 1898, a second small building has been constructed in the west of the site. These buildings were removed by 1950. Prior to 1985 two different buildings were constructed in the west of the site and a new drain had been laid in the central to the site running north / south, and by 2002 a third building had been constructed (Figure 4-2). This layout was present up to and including the 2014 map.



Figure 4-1 Extract of the 1880 map



Figure 4-2 Extract of the 2002 map

#### 4.1.2 Off site history

Prior to 1880, the site was surrounded by agricultural land that was noted as 'Liable to Floods'. Roman Way bound the west of the site. Adjacent to the eastern corner of the site was Bicester Sewage Pipe, flowing 200m south to a sewage tank. 50m east was the Oxford Main line. The edge of Bicester was 500m north. Prior to 1960 new railway sidings and depots were constructed from 250m south around Graven Hill. By 1970, Bicester had expanded west, and Roman Way was straightened and renamed to Oxford Road, a Sewage Farm was constructed 200m south. 50m north was a new building, part of a farm, and a well. This well appears to be the source of the water, which enters the drainage ditch intersecting the site (it is assumed the well was present before this, just unlabelled). By 1985 Bicester had expanded further west, the sewage farm (now Sewage Works) also expanded. The field boundary / drainage ditch was no longer present adjacent to the north. A Nursery was constructed adjacent to the south. By 1995 the A41 was constructed adjacent to the north of the site running east, beyond this was a new commercial area with recreation grounds beyond. The nursery to the south also expanded.

## 4.2 Regulatory Data

Regulatory data relating to potentially contaminative uses is summarised in Table 4-1 below. This information was obtained from the Groundsure report, presented in full in Appendix D.

Table 4-1 - Summary of Regulatory Data

Item	Location [on/off site]	Information	Potential to Impact
<b>Environmental Permits, Incidents and Registers</b>			
List 2 Dangerous Substances	4 [215m S]	All four licences relate the discharge of various metals to Langford Brook by Haul Waste Disposal Ltd	No
Past A(2) and Part B Activities	2 [125m NW, 228m NE]	Petrol filling stations associated with Tesco and Esso respectively.	Yes
Discharge Consents	2 [98m NE]	Bicester retail park for the discharge to surface water of miscellaneous	No
	9 [215m S]	Sewage Treatment licences for storm overflow and treated effluent. 7 revoked, 2 remain.	No
	4 [From 262m]	Service station and Business centre, sewage treatment works – all revoked.	No
Environment Agency Recorded Pollution Incidents	1 [5m S]	2002: Microbial to water	No
	3 [45m N]	2001: Various contaminants to land	No
	1 [217m SE]	2002: Sewage to water	No
	1 [243m NE]	2003: Petrol – no impact recorded	No
There are no records of the following in 500m of the site; IPC or IPPC authorisations, red list discharge consents, list 1 dangerous substances, radioactive substances, water industry referrals, planning hazardous substance consents, COMAH & NIHHS sites, sites determined Contaminated Land under Part 2a.			
<b>Landfill and Other Waste Sites</b>			
Environment Agency licenced waste sites	2 [480 and 500m NE]	McGregor Railway Services, metal recycling. One surrendered in 2009, once active for between 25000 and 75000 tonnes.	No
There are no records of the following within 500m of the site; Environment Agency current or historic landfills, BGS non-operational landfills, Local Authority landfills or waste treatment, transfer or disposal sites.			

## 4.3 Radon

The Groundsure report and Indicative Atlas of Radon for England and Wales [6] indicates that the site is not within a Radon Affected Area, as less than 1% of the properties are above the action level. Therefore, no radon protective measures are necessary.

## 4.4 Mining

There are no records of mining (coal, non-coal or brine) within 50m of the Site based on records from the Coal Authority (Appendix D).

## 4.5 Natural Hazard

Regulatory data relating to ground stability is summarised in Table 4-2 below. This information is from the Groundsure report, presented in full in Appendix D.

Table 4-2 Potential natural hazards based on BGS Geosure data

Potential Hazard	Identified risk
Shrink swell	Moderate
Landslide	Very Low
Soluble Rocks	Low
Compressible Ground	Moderate
Collapsible Rocks	Very Low
Running Sand	Low

## 4.6 Unexploded Ordnance

A Preliminary UXO Risk Assessment has been carried out by BuroHappold in accordance with CIRIA C681 [7] and is included in Appendix C. Consideration of the potential for aerial delivered UXO and to the potential mitigation factors, namely: (i) the extent of post-war development; and (ii) the extent of proposed intrusive works. The assessment concluded that the risks associated with UXO are low, therefore no specific precautions are required for below ground works.



## 5 Previous Site Investigations

### 5.1 Publically available records

In August 2012, permission was granted to construct a foodstore and petrol filling station by Cherwell District Council on land adjacent to the A41 (Ref. 12/01193/F). Prior to this, in June 2012 Delta-Simons completed a Phase 1 Desk Study. The Desk Study did not identify any potentially contaminative land uses on site, however the adjacent sewage treatment works, railway line and the petrol filling station were identified as potential sources of off-site contamination. The source-pathway-receptor risk assessment concluded that a pollution linkage was unlikely. The report concluded that a ground investigation should be undertaken to provide waste classification data and confirm background [baseline] soil and groundwater chemical concentrations. The Desk Study concluded the site to be low to moderate risk in terms of planning conditions.

No further contaminated land investigations were provided to support the planning permission.

### 5.2 BuroHappold site investigation

In 2014, BuroHappold commissioned Structural Soils to complete a Site Investigation to provide information on a proposed trunk sewer, access road and ornamental lake. The data was combined with an investigation from 2008. The 2008 works comprised five cable percussion boreholes, a rotary cored borehole and five machine dug trial pits. In 2014, an additional cable percussive borehole and five mechanical trial pits were completed. The exploratory holes extended to a maximum depth of 11.70m below ground level (bgl) in the rotary borehole. The logs are reproduced in Appendix B.

Typically, from ground level to about 1-2m bgl there were superficial deposits. In the east, the Kellaways Clay Member were present up to 4.9m bgl, underlying the superficial deposits. The Kellaways Clay Member thins to the west and was not present in the far west. The Cornbrash Formation was encountered in all locations beneath the Kellaways Clay Member (where present) or the Superficial Deposits where the Kellaways Clay Member is not present. The base of the Cornbrash Formation was only proven in BH2, where the formation extended to 2.25m bgl. The Forest Marl Formation was proven between 2.25m bgl and 9.40m bgl, under the Forest Marl Formation the White Limestone was present to the base of the hole (11.70m bgl).

In 2014, chemical analysis was completed on four soil samples from the exploratory holes from between 0.5 and 1.3m bgl in the superficial deposits, no geoenvironmental interpretation was undertaken. As part of this report, BuroHappold have reassessed this data comparing to LQM Suitable for Use Levels (S4UL). All the samples chemical concentrations are below both the S4UL residential and commercial usage scenario thresholds. No asbestos testing was undertaken.

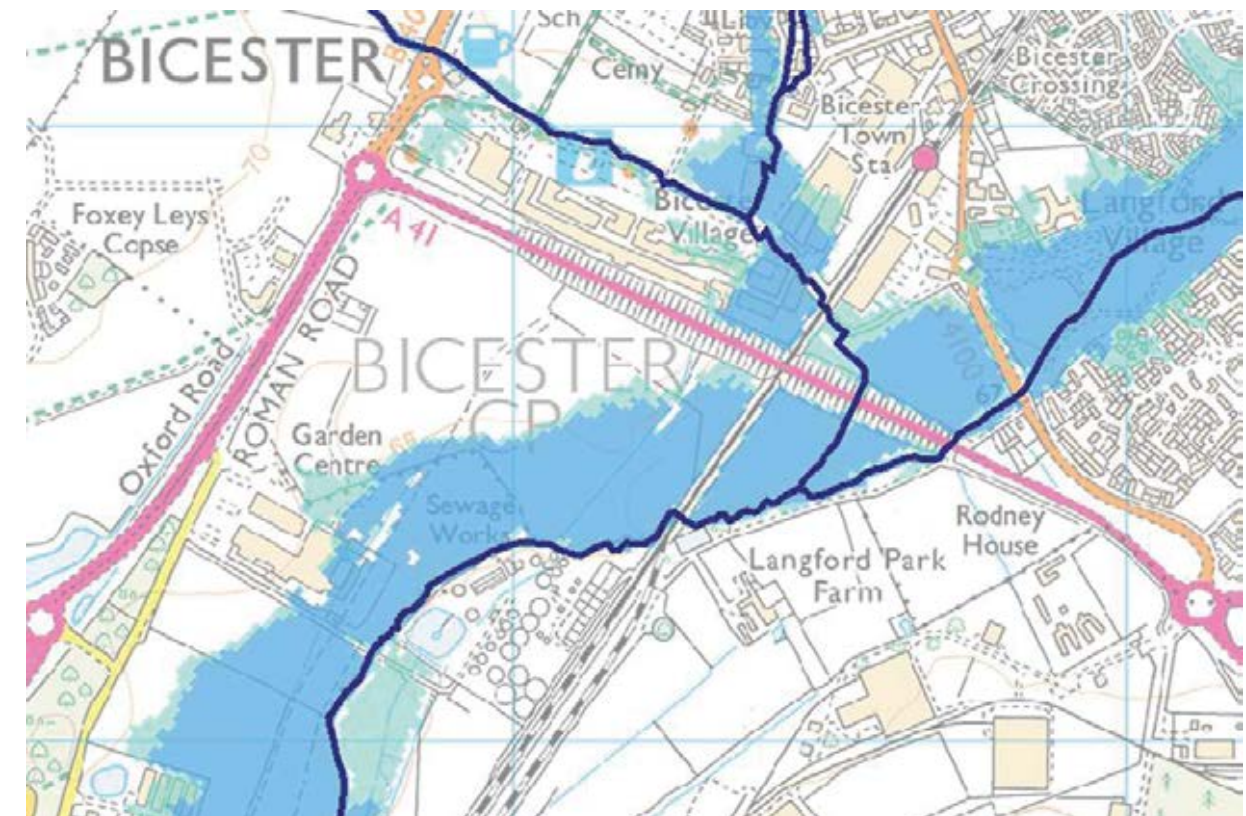
## 6 Flood Risk Appraisal

The site's south eastern boundary is adjacent to a watercourse known as the Langford Brook and as a result falls within the flood zone of this watercourse. A number of flood studies have been carried out since the initial planning application for the site in 2007 so the flood characteristics are well understood.

The Environment Agency currently has a flood classification system based on 3 zones as follows

- Zone 3-High risk of flooding with flood return events of less than 1in 100 years
- Zone 2-Medium risk of flooding with flood return events of between 1 in 100 and 1 in 1000 years
- Zone 1-Low risk of flooding with flood return events greater than 1 in 1000 years

The zone boundaries on the Bicester site have been adjusted since 2007 to take account of the changing weather patterns and the projected effects of climate change. The EA guidance was most recently updated in February 2016 and the current EA flood map is shown below.



The dark blue area is zone 3 and light blue zone 2. All other areas are within zone 1. It should be noted that the whilst the EA regularly update the flood maps the boundary between the zones are approximate and tend to be conservative. A flood risk assessment that will be required in support of a revised planning application would identify the zones more accurately.

The plan shows that the south eastern part of the site falls within zones 2 and 3 with the majority of the area being zone 3. The current outline Masterplan for the site has recognised this and no buildings or essential surface infrastructure was planned to be located within zones 2 or 3. The proposed land uses are acceptable for zone 3 i.e. open space and nature conservation area.

Due to the site topography zone 2 is a relatively narrow area and if necessary non critical infrastructure can be located in this area provided that the proposed level are at or below current ground levels.

Development within zone 1 will be permitted and buildings and infrastructure within zone 1 will be at a low risk of flooding. There will be a need to set the building floor levels so that they have a freeboard above the 1 in 100 year flood level. The freeboard will also account for the predicted increase in 1 in 100 year flood level due to climate change. In addition the site will be subject to planning restrictions which will limit the surface water runoff to current 'greenfield' runoff rates. However both of these requirements were met by the current outline planning proposals and should not present any undue constraints to a revised planning application. It should be noted that it is likely that the minimum floor levels will have increased by 200/300 mm from the previous agreed levels due to increased climate change allowances. There is a possibility that the line of the zone 2/zone 1 boundary may have moved and have slightly reduced the area of zone 1. If the new flood risk assessment shows that this is the case the masterplan layout shown in figure 2-2 may require modifying. However this can be achieved by adjusting the landscaped areas whilst maintaining the building floor space and quantum of parking proposed.

This note deals with the risk of fluvial flooding. There was a minor flood event from the public sewerage network that crosses the site and is connected to the sewage treatment works which is located on the other side of the Langford Brook. The flooding from the sewers occurred at the point in the network immediately adjacent to the sewage treatment works. This area is within flood zone 3 and it not proposed to be developed. Therefore in addition to the flood event being an isolated occurrence, should it reoccur it will not impact the proposed development. To the best of our knowledge the public foul sewer located under the access road has not flooded and is not currently overloaded.

In conclusion, whilst part of the site lies within a designated flood zone, the hydrology is understood and the current masterplan has designated land uses that are commensurate with the zone classifications. A revised planning application will need a new flood risk assessment but the constraints posed by the flood risk consideration should be met with standard design solutions.

## 7 Preliminary Geoenvironmental Risk Assessment

### 7.1 General Approach

In the UK, the assessment of risk from contamination follows the source-pathway-receptor approach. If one of these three elements is absent, it is considered that there is no risk of harm. If, however, there is considered to be a linkage between any given source and any given receptor, then a risk-based approach is used to assess the significance or impact of any such linkage.

Risks are defined as the probability of an event occurring combined with the severity of the consequence of that event. Particularly, to assess the risks to site end users posed by any given source, the sensitivity of each receptor is considered. For example, the concentration of contamination acceptable at a site to be developed as a residential property with a garden used to grow vegetables and accessible to young children is set lower than that for a commercial site where soil is exposed only in minor areas of landscaping and the only long-term users of the site are adults. Similarly, a site overlying a Principal Aquifer supplying potable water to a large population will be considered more stringently than a site overlying an impermeable geology with only minor seepages of groundwater.

### 7.2 Sources, Receptors and Pathways

Potential contamination sources have been identified and are summarised in Table 7-1 below. The 'Contaminants of Concern' in this risk assessment are based primarily on information from the review of historical information, reference to DEFRA R&D Publication CLR 8 'Priority Contaminants for the Assessment of Land' and relevant Industry Profile reports published by the Department of Environment. Site specific pathway-receptor linkages have been identified in Table 7-2 with respect to the sources outlined in Table 7-1 and with respect to the anticipated future uses.

Table 7-1 - Summary of Potential Contamination Sources

Potential Source	Location	Likely Age	Potential Contaminants of Concern
Current on site activities (agriculture, evidence of overflowing sewer)	On site	<150 years	Fertilisers and nutrients Faecal matter Metals
Current on site use (bund and material storage on site)	On site	<5 years	Asbestos* Metals
Adjacent contaminative uses (petrol filling stations – former pollution incident associated with this)	Off site (adjacent to NE)	<10 years	Hydrocarbons (petrol, diesel, oils)
Adjacent contaminative uses (sewage treatment works)	Off site (adjacent to SW)	<50 years (>150 years for former 'sewage pipe')	Fertilisers and nutrients Faecal matter Metals

\* No potentially asbestos containing materials observed in the bund during the site visit.

Table 7-2 - Summary of Receptors and Pathways

Receptor	Pathway	
Human Health	Construction / Maintenance Workers	Direct contact, ingestion, inhalation
	Future Site Occupants	Direct contact, ingestion, inhalation
	Site Neighbours	Soil and dust ingestion
Controlled Waters	Secondary and Principal Aquifers	Migration through granular strata
	Surface Waters	Surface water run-off and drainage/sewerage network
Ecology	On site flora and fauna	Root uptake
Built Environment	Water supply pipes / building fabric	Direct contract

7.3 Results of Risk Assessment

The details of the Preliminary Risk Assessment are presented in Table 7-3 overleaf and the results discussed in Section 8.1.

Table 7-3 - Preliminary Risk Assessment

Source			Receptor/ Pathway	Risk assessment (following CIRIA C552)			Comment on hazard realisation.
Origin	Contaminants of concern	Zone affected		Consequence	Probability	Risk	
Current site use (agriculture, overflowing sewer, bund and material storage)	Fertilisers and nutrients Faecal matter Metals Asbestos	On site	<b>Description of source:</b> The site, historically and presently, is open agricultural land. Since 2014 the land adjacent to the north has been developed as a food superstore with a petrol forecourt, another petrol forecourt is located 100m north west. The further petrol station appears to have been subject to voluntary remediation (Section 3.2), assumed to be for a fuel leak to ground (unconfirmed). A sewage treatment works is located 200m south east of the site. A series of manholes showing the path of the trunk sewer, intersect the site leading to the sewage treatment works. There is evidence that the sewers block and possibly overflow (wet wipes around manhole covers). An access road and associated bund contain the north of the site, some areas in the north of the site are also used for storage of building materials. As part of a site investigation for the design of the trunk sewers, four samples were taken for chemical analysis. Although no interpretation was completed in the investigation, this report has screened the results against S4UL values. No samples exceed residential or commercial thresholds. No potentially asbestos containing material observed in banded material.				
			<b>Site neighbours</b> Soil and dust ingestion	Medium	Low likelihood	<b>Moderate / Low</b>	Residential properties adjacent to site could be impacted from dust generated from site. Limited potential in normal use, with increased potential during any earthworks. Risk is mainly associated with potential of asbestos in bund material / material storage. If this is further quantified/managed then mitigation of potential risks can be achieved by good construction practice.
			<b>Investigation and construction workers</b> Soil and dust ingestion, dermal contact	Medium	Low likelihood	<b>Moderate / Low</b>	Potential for exposure during investigations/ earthworks. Period of exposure dependent on construction timescales. Standard Health and Safety precautions likely to be used by workers. Mitigation of potential risks can be achieved by appropriate investigation and good construction practice.
			<b>Future site users</b> Dermal uptake, soil and dust ingestion, ingestion of contaminated water supplies	Medium	Low likelihood	<b>Moderate / Low</b>	Proposed future use is for commercial use with significant landscaping. Potential for direct contact and ingestion limited by proposed soil cover. Mitigation of potential risks can be achieved by appropriate investigation / design and implementation of remediation / mitigation measures including encapsulation.
			<b>Degradation of Water quality (Principal and Secondary Aquifers and surface water)</b> Migration via permeable strata	Mild	Low Likelihood	<b>Low</b>	Secondary Aquifer discontinuous across site as thins to west, underlying Principal Aquifer not protected. Made Ground is limited in thickness and does not appear to be grossly contaminated, however risk from development / construction could be detrimental to the site. Mitigation of potential risks could be achieved by appropriate investigation / design and implementation of remediation / mitigation.
			<b>Root uptake</b> Detrimental effects (stunted grown, die back) on plant life	Mild	Unlikely	<b>Very Low</b>	Vegetation on site did not show any adverse effects however limited to short grasses across majority of site and semi-mature trees around perimeter. Potential for uptake in any areas of soft landscaping. Mitigation of potential risks can be achieved by appropriate investigation / design and implementation of remediation / restoration.

## 8 Conclusions and Recommendations

### 8.1 Geoenvironmental risk summary

The following risks have been identified above low and will require further investigation:

Receptor	Source [Pathway]	Resultant Risk
Site neighbours, construction workers and future site users	Asbestos, metals, Fertilisers and nutrients Faecal matter [dust/inhalation]	Moderate / Low

### 8.2 Flood risk considerations

Part of the site lies within a designated flood zone the hydrology is understood and the current masterplan has designated land uses, which are commensurate with the zone classifications. A revised planning application will need a new flood risk assessment but the constraints posed by the flood risk consideration should be met with standard design solutions.

### 8.3 Recommendations

The risk is considered suitably low that no exceptional costs associated with ground remediation are likely to be realised for the proposed development, therefore it is unlikely that further investigation is required for outline planning permission.

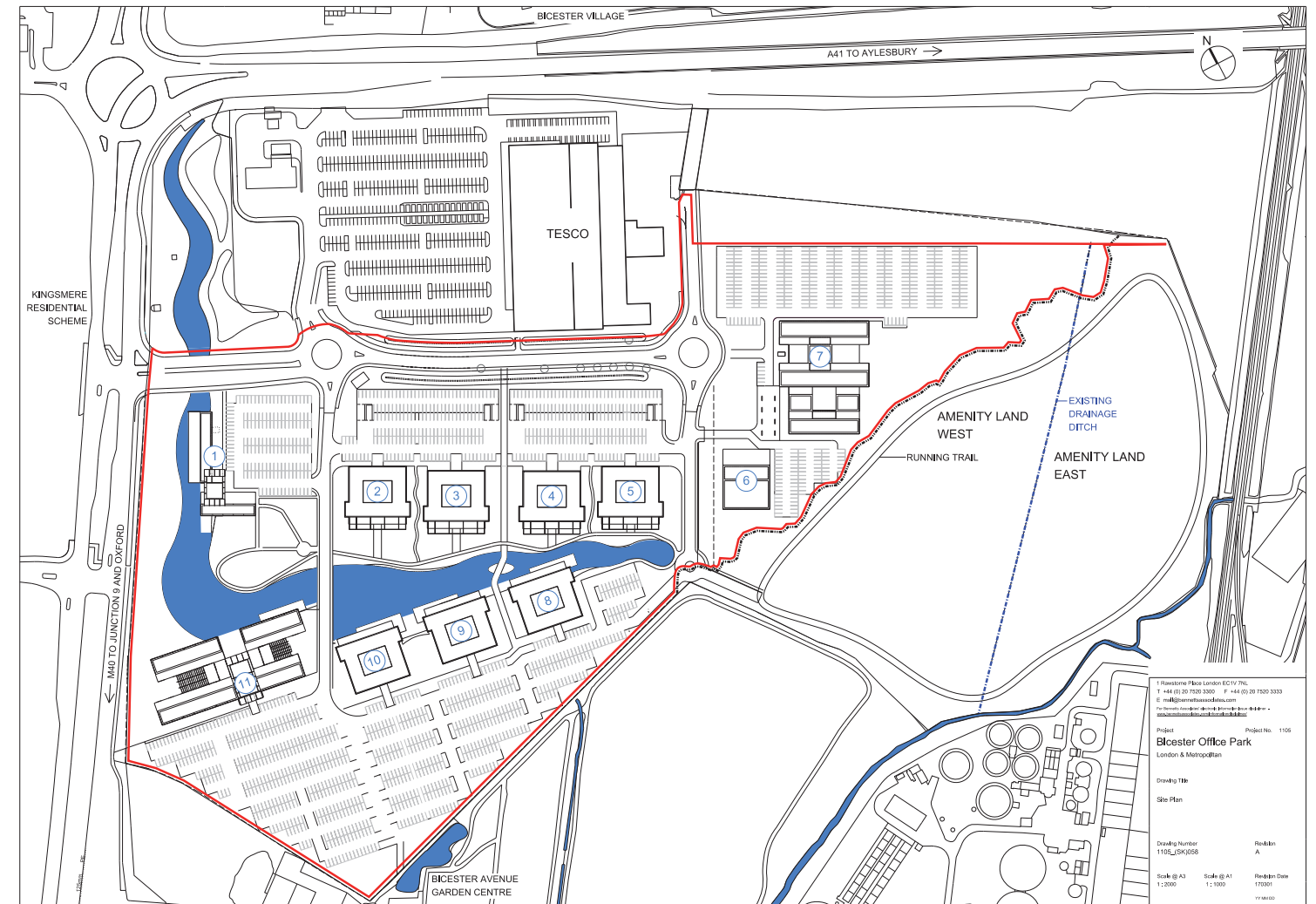
A site investigation will be required to meet planning conditions. This will need to assess the geoenvironmental risks associated with the construction of the proposed structures. This investigation will be used to confirm and quantify the potential risks to site neighbours and future site users and will inform the need for any mitigation or remediation requirements.

During construction standard practice such as welfare facilities, good housekeeping, contamination watching brief and PPE should be adopted.

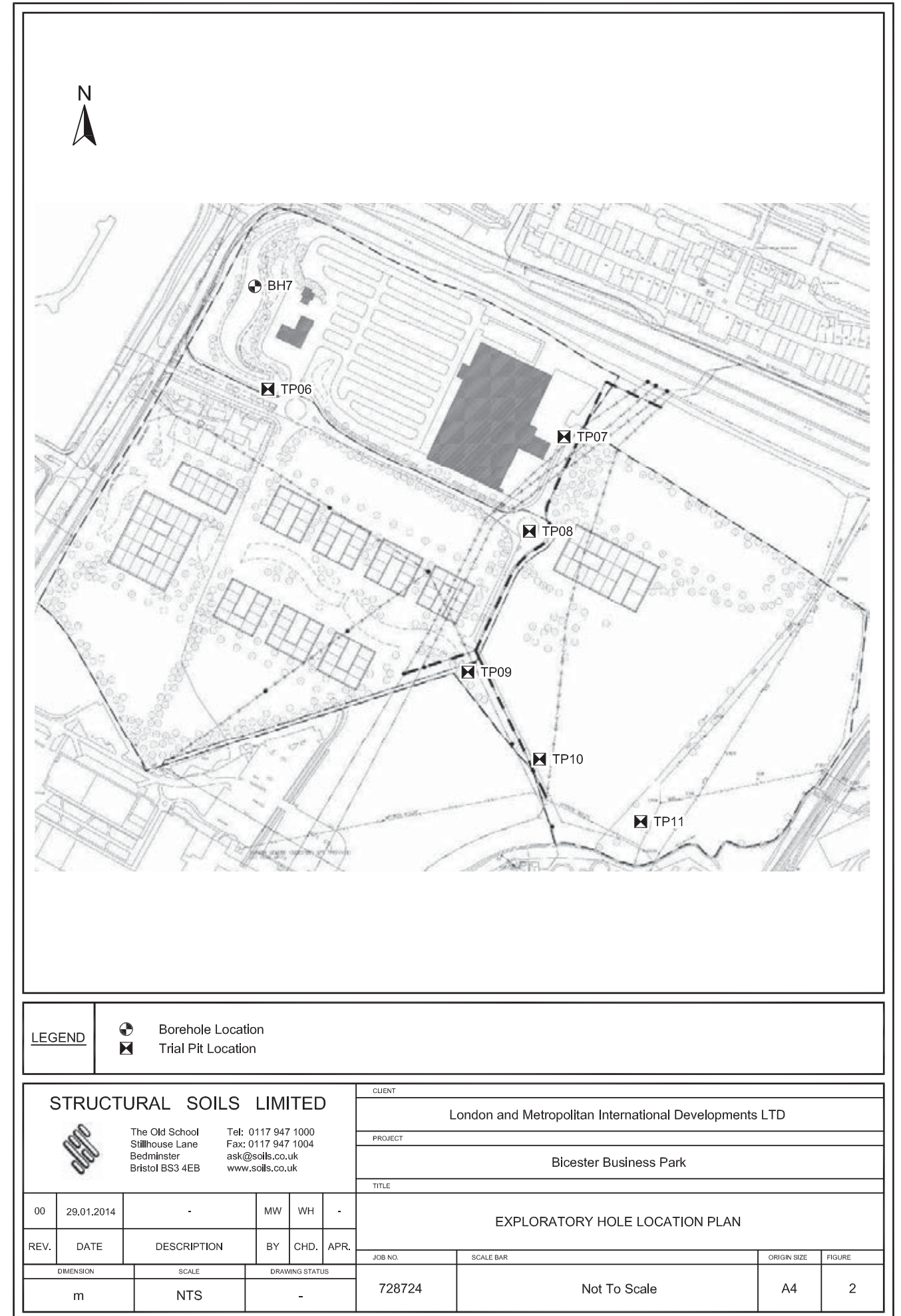
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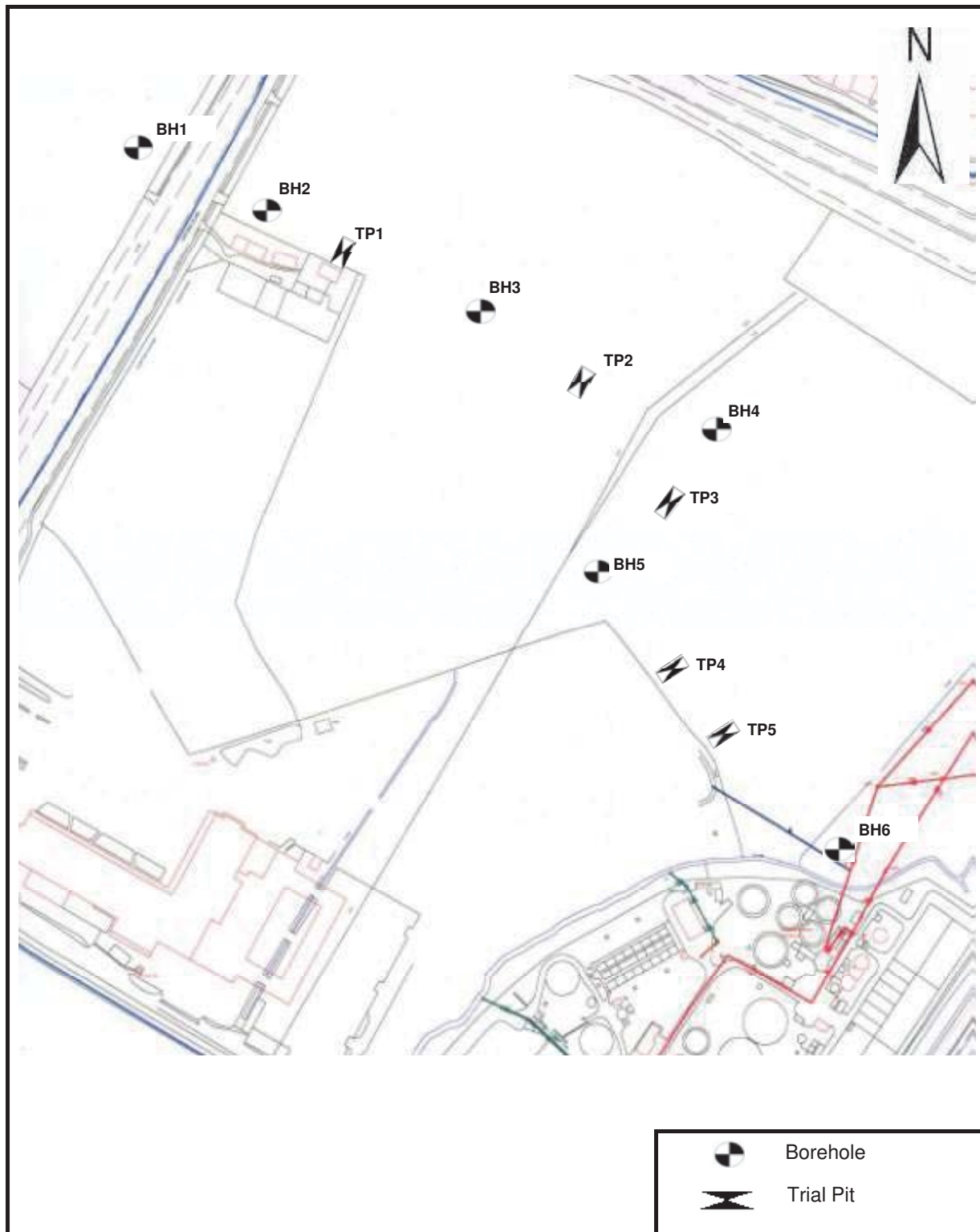
Source			Receptor/ Pathway	Risk assessment (following CIRIA C552)			Comment on hazard realisation.
Origin	Contaminants of concern	Zone affected		Consequence	Probability	Risk	
			<b>Buildings/services - permeation of water supply pipework, degradation of concrete</b> Direct contact/, aggressive attack/ below ground structures	Medium	Unlikely	<b>Low</b>	Potential for direct contact on redevelopment site. No record of derogation to water supply. Mitigation of potential risks can be achieved by appropriate investigation / design and implementation of remediation.
Adjacent sewage treatment works and petrol filling stations	Faecal matter Metals Hydrocarbons	On site	<b>Description of source: Adjacent sites are possible contamination sources. Petrol forecourt appears to be undertaking voluntary remediation, however associated pollution incident categorised as No Impact. Main pathway is groundwater. Groundwater flow assumed to follow topography to south (although not proven at this stage). Sewage works downstream from the site.</b>				
			<b>Investigation and construction workers</b> Groundwater ingestion, dermal contact	Mild	Unlikely	<b>Very Low</b>	Potential for exposure during investigations/ earthworks. Period of exposure dependent on construction timescales. Standard Health and Safety precautions likely to be used by workers. Mitigation of potential risks can be achieved by appropriate investigation and good construction practice.
			<b>Future site users</b> Dermal uptake, groundwater ingestion, inhalation of vapours ingestion of contaminated water supplies	Medium	Unlikely	<b>Low</b>	Proposed future use is for commercial use with significant landscaping. Potential for contaminants to enter on site water feature or release of gas/vapour from degradation of contaminants. Any such impact likely to be quickly identified and dealt with. Mitigation of potential risks can be achieved by appropriate investigation / design and implementation of remediation / mitigation measures including encapsulation.

Appendix A – Relevant figures



Appendix B - Relevant investigation and BGS borehole logs





**EXPLORATORY HOLE LOCATION PLAN**

<b>Structural Soils Limited</b> The Old School Stillhouse Lane Bedminster BS3 4EB	Site	Job no.		
	<b>7RWG - Whitelands Farm</b> <b>Oxford Road FAS</b> <b>Diversion, Bicester</b>	721026		
		Drawing no.		2
		Date		Feb-08
Client	Thames Water Utilities Ltd	Drawn by	TB	

**APPENDIX B**

- (i) Key to Exploratory Hole Logs
- (ii) Borehole Logs
- (iii) Trial Pit Logs and Photographs



**KEY TO EXPLORATORY HOLE LOGS - SUMMARY OF ABBREVIATIONS**

SAMPLING

*Sample type codes*

- B = Bulk disturbed sample.
- D = Small disturbed sample.
- DSPT = Small disturbed sample originating from SPT test.
- LB = Large bulk disturbed sample (for earthworks testing).
- U = Undisturbed driven tube sample - Number of blows indicated. % recovery reported.

*Undisturbed sample detail codes*

- U<sub>(100)</sub> = 100mm diameter undisturbed sample.

IN-SITU TESTING

- SPT = Standard Penetration Test using split spoon sampler. (SPT<sub>(NR)</sub> indicates 'No Sample Recovery').
- V = Field Vane Test. Peak value (c<sub>u</sub>) & Residual value (c<sub>r</sub>), given as shear strength in kPa.

ADDITIONAL NOTES

1. All soil and rock descriptions and legends in general accordance with BS EN ISO 14688-1, 14688-2, 14689-1, and BS5930:1999 including Amendment 2 (2010).
2. Material types divided by a broken line ( - - - ) indicates an unclear boundary.
3. The data on any sheet within the report showing the AGS icon is available in the AGS format.



**KEY TO EXPLORATORY HOLE LOGS - SUMMARY OF GRAPHIC SYMBOLS**

WATER COLUMN SYMBOLS

- First water strike, second water strike etc.
- Standing water level following first strike, standing water level following second strike etc.
- Seepage.
- Standing water level recorded at documented date.

MATERIAL GRAPHIC LEGENDS

- |  |                      |  |                     |  |   |  |                     |
|--|----------------------|--|---------------------|--|---|--|---------------------|
|  | Clayey sandy GRAVEL  |  | Sandy clayey GRAVEL |  | Silty gravelly CLAY with COBBLES and BOULDERS |  | MADE GROUND         |
|  | Possible MADE GROUND |  | Sandy CLAY          |  | Gravelly sandy CLAY                           |  | Sandy gravelly CLAY |

INSTRUMENTATION SYMBOLS

- Backfill





BOREHOLE LOG

Contract <b>Whitelands Farm, Oxford Road FAS, Bicester</b>		Client <b>Thames Water Utilities Limited</b>		Borehole No <b>BH1</b>
Job No <b>721026</b>	Start <b>16.01.08</b> End <b>16.01.08</b>	Ground Level <b>67.98</b>	Local Grid Co-Ordinates <b>E:457638.5 N:221775.4</b>	Sheet <b>1 of 1</b>

Samples and In-situ Tests				Water	Instrumentation	Description of Strata	Reduced Level	Depth (Thickness)	Legend			
Depth	No	Type	Blows									
0.20-0.50	1	B		11	[Pattern]	Soft light brown slightly sandy slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to subrounded of limestone. (Superficial Deposits)	67.58	0.40	[Pattern]			
0.30	2	ES					67.18	0.80	Very strong yellow grey medium to coarse bioclastic LIMESTONE. (Cornbrash Formation)			
0.50	3	ES										Borehole terminated at 0.8m depth on rockhead.

Boring Progress and Water Observations						Chiselling			General Remarks
Date	Time	Borehole Depth	Casing Depth	Casing Diameter	Water Depth	From	To	Duration (hh:mm)	
16/01/08	14:30	0.40	0.00	150	0.40	0.40	0.80	01:15	1. Inspection pit hand dug to refusal at between 0.40-0.50m depth. 2. Water struck and standing at 0.40m depth in inspection pit. 3. Borehole progressed by chiselling between 0.40-0.80m depth (1.25hrs).
All dimensions in metres Scale <b>1:50</b>			Method <b>Cable Percussion</b>		Drilled By <b>MR</b>	Logged By <b>TB</b>	Checked By		

STRUCTURAL\_SOILS\_V6\_02.GLB - V8 - CABLE PERCUSSION LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02.GDT | 04/06/08 - 11:32



WINDOW SAMPLE LOG

Contract <b>Whitelands Farm, Oxford Road FAS, Bicester</b>		Client <b>Thames Water Utilities Limited</b>		Window Sample No <b>BH2</b>
Job No <b>721026</b>	Date <b>13.02.08</b>	Ground Level <b>66.72</b>	Local Grid Co-Ordinates <b>E:457708.3 N:221739.5</b>	Sheet <b>1 of 4</b>

Progress Window Run (size (mm))	Samples / Tests			Water	Instrumentation	Description of Strata	Reduced Level	Depth (Thickness)	Legend
	Depth	No	Type						
0.50 - 1.50 (110) 100 % rec	0.00-0.30	1	B		[Pattern]	MADE GROUND: Dark brown slightly clayey slightly sandy GRAVEL. Gravel is angular to subangular fine to coarse of concrete flint and limestone.	66.22	0.50	[Pattern]
	0.50-0.60	2	B			Dark brown slightly clayey slightly sandy GRAVEL with some cobbles. Gravel is angular to subangular fine to coarse of limestone. Cobbles of limestone up to 150mm diameter. (Cornbrash Formation)	66.12	0.60	[Pattern]
	0.60-0.80	3	D			Green brown clayey slightly sandy GRAVEL. Gravel is angular to subangular medium to coarse of limestone. (Cornbrash Formation)	65.22	1.50	[Pattern]
1.00-1.20	4	D							
Window sample hole continued using rotary coring techniques from 1.50m depth.									

General Remarks									
1. Inspection pit hand dug to refusal at maximum 0.60m depth. 2. Borehole drilled using dynamic ('window') sampling techniques to 1.50m depth, then extended by rotary coring.									
All dimensions in metres Scale <b>1:25</b>			Method <b>Comacchio MC300</b>		Logged By <b>TB</b>	Checked By			

STRUCTURAL\_SOILS\_V6\_02.GLB - V8 - WINDOW SAMPLE LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02.GDT | 04/06/08 - 11:32



ROTARY LOG

Contract Whitelands Farm, Oxford Road FAS, Bicester Client Thames Water Utilities Limited Borehole No BH2 Job No 721026 Start 13.02.08 End 14.02.08 Ground Level 66.72 Local Grid Co-Ordinates E:457708.3 N:221739.5 Sheet 2 of 4

Main log table with columns: Drilling Records (Depth, Test, W), Mechanical Log (TCR, SCR, RQD, If), Instrumentation, Water, Description of Strata, Reduced Level, Legend. Includes soil descriptions like 'Moderately strong light grey coarse grained LIMESTONE' and 'Very stiff dark grey slightly sandy CLAY'.

Summary table with sections: Drilling Progress and Water Observations, General Remarks (Borehole extended by rotary coring...), and Scale/Method/Drilled/Logged/Checked/AGS.

STRUCTURAL\_SOILS\_V6\_02\_GLB\_V8 - ROTARY LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02\_GDT | 04/06/08 - 11:33



ROTARY LOG

Contract Whitelands Farm, Oxford Road FAS, Bicester Client Thames Water Utilities Limited Borehole No BH2 Job No 721026 Start 13.02.08 End 14.02.08 Ground Level 66.72 Local Grid Co-Ordinates E:457708.3 N:221739.5 Sheet 3 of 4

Main log table with columns: Drilling Records (Depth, Test, W), Mechanical Log (TCR, SCR, RQD, If), Instrumentation, Water, Description of Strata, Reduced Level, Legend. Includes soil descriptions like 'Strongly thin bedded light grey coarse grained LIMESTONE' and 'Very stiff dark grey slightly sandy SILT'.

Summary table with sections: Drilling Progress and Water Observations, General Remarks, and Scale/Method/Drilled/Logged/Checked/AGS.

STRUCTURAL\_SOILS\_V6\_02\_GLB\_V8 - ROTARY LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02\_GDT | 04/06/08 - 11:33



ROTARY LOG

Contract <b>Whitelands Farm, Oxford Road FAS, Bicester</b>		Client <b>Thames Water Utilities Limited</b>		Borehole No <b>BH2</b>
Job No <b>721026</b>	Start <b>13.02.08</b> End <b>14.02.08</b>	Ground Level <b>66.72</b>	Local Grid Co-Ordinates <b>E:457708.3 N:221739.5</b>	Sheet <b>4 of 4</b>

Drilling Records		Mechanical Log				Instrumentation	Water	Description of Strata	Reduced Level	Legend
Depth	Test	W	TCR	SCR	RQD					
10.20-11.70	Core		87	80	0		<p>Firm dark grey slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of limestone. (Forest Marble Formation) (<i>stratum layer from previous sheet</i>)</p> <p>Moderately strong very thinly bedded very light grey coarse grained LIMESTONE. Discontinuities are undulating rough horizontal. (White Limestone Formation)</p> <p>Weak thinly laminated very light grey fine grained LIMESTONE. Discontinuities are extremely closely spaced undulating rough horizontal tight infilled with slightly sandy clay. (White Limestone Formation)</p> <p>Very stiff very light grey slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of limestone. (White Limestone Formation)</p> <p>Moderately weak to moderately strong medium bedded light grey coarse grained LIMESTONE. Discontinuities are medium spaced undulating rough horizontal open to very open infilled with gravelly clay. (White Limestone Formation)</p>	57.32	9.40	
								57.12	9.60	
								56.82	9.90	
								56.72	10.00	
10.50	C	W							(1.70)	
11.50	C									
Borehole terminated at 11.7m depth.								55.02	11.70	

Drilling Progress and Water Observations						General Remarks
Date	Time	Borehole Depth	Casing Depth	Casing Diameter	Water Depth	

All dimensions in metres  
Scale **1:26** Method **Comacchio MC300** Drilled By **JB** Logged By **TB** Checked By **AGS**



BOREHOLE LOG

Contract <b>Whitelands Farm, Oxford Road FAS, Bicester</b>		Client <b>Thames Water Utilities Limited</b>		Borehole No <b>BH3</b>
Job No <b>721026</b>	Start <b>06.02.08</b> End <b>06.02.08</b>	Ground Level <b>67.86</b>	Local Grid Co-Ordinates <b>E:457853.9 N:221675.0</b>	Sheet <b>1 of 1</b>

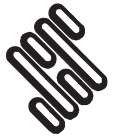
Samples and In-situ Tests				Water	Instrumentation	Description of Strata	Reduced Level	Depth (Thickness)	Legend
Depth	No	Type	Blows						
0.40-0.80	1	D				<p>TOPSOIL: Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of limestone.</p> <p>Firm mottled light grey, orange brown and green brown slightly sandy CLAY. (Superficial Deposits)</p>	67.46	0.40	
1.10-1.30	2	D				<p>Stiff dark grey with occasional partings of orange brown slightly sandy CLAY. Occasional gravel subangular to subrounded fine to medium limestone. (Superficial Deposits) ... becoming firm below about 1.50m</p>			
1.20	HP		$c_u=75/100$				66.76	1.10	
1.50-2.00	3	U	30			<p>Firm thinly laminated dark grey with some partings of yellow cream slightly sandy CLAY. (Kellaways Clay Member)</p>			
2.00-2.10	4	D					65.76	2.10	
2.10-2.55	5	SPT	N=8			<p>Stiff dark grey with occasional slightly sandy partings of dark orange brown and cream CLAY. Occasional medium to coarse gravel size gypsum crystals present. (Kellaways Clay Member)</p> <p>... increase in gravel content below 3.50m.</p>			
2.80	6	D					65.06	2.80	
3.00-3.50	7	U	60			<p>Moderately weak dark grey LIMESTONE. (Combrash Formation)</p> <p>Borehole terminated at 3.80m depth on very strong limestone.</p>			
3.50-3.75	9	SPT	N=150*				64.16	3.70	
3.50-3.60	8	D				64.06	3.80		
3.50-3.60	10	D							
3.60-3.80	11	D							
3.80-3.80	12	SPT	N=15000*						

Boring Progress and Water Observations						Chiselling			General Remarks
Date	Time	Borehole Depth	Casing Depth	Casing Diameter	Water Depth	From	To	Duration (hh:mm)	
06/02/08	11:00	1.50	1.50	150	DRY	3.70	3.80	01:00	
06/02/08	16:00	3.80	1.50	150	DRY				

All dimensions in metres  
Scale **1:50** Method **Cable Percussion** Drilled By **AL** Logged By **TB** Checked By **AGS**

STRUCTURAL\_SOILS\_V6\_02.GLB - V8 - ROTARY LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02.GDT | 04/06/08 - 11:33

STRUCTURAL\_SOILS\_V6\_02.GLB - V8 - CABLE PERCUSSION LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02.GDT | 04/06/08 - 11:32



STRUCTURAL SOILS

BOREHOLE LOG

Contract	<b>Whitelands Farm, Oxford Road FAS, Bicester</b>	Client	<b>Thames Water Utilities Limited</b>	Borehole No	<b>BH4</b>
Job No	<b>721026</b>	Start	<b>07.02.08</b>	Ground Level	<b>66.06</b>
		End	<b>07.02.08</b>	Local Grid Co-Ordinates	<b>E:458017.0 N:221590.5</b>
				Sheet	<b>1 of 1</b>

Samples and In-situ Tests				Water	Instrumentation	Description of Strata	Reduced Level	Depth (Thickness)	Legend	
Depth	No	Type	Blows							
0.30-0.60	1	D				MADE GROUND: Soft brown slightly sandy slightly gravelly clay TOPSOIL. Gravel is angular to subangular fine to coarse of flint red brick and cornbrash limestone. Some fossils present.	65.76	0.30		
0.30	1A	ES							(0.70)	
0.50	2A	ES				Soft light orange brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of limestone.				
0.60-0.90	2	B				(Superficial Deposits)	65.06	1.00		
1.00	3A	ES				... becoming firm from 0.5m depth.				
1.30-1.80	3	U	50			Firm, becoming soft with depth light bluish grey and orange brown mottled slightly sandy CLAY.			(0.80)	
						(Kellaways Clay Member)	64.26	1.80		
1.80-2.25	5	SPT	N=5			Soft thinly laminated dark grey with occasional partings of orange brown slightly sandy CLAY with occasional gravel subrounded fine of very weak limestone.			(0.70)	
1.80-1.90	4	D				(Kellaways Clay Member)	63.56	2.50		
2.50	6	D				Firm thinly laminated dark blue grey CLAY.			(0.80)	
						(Kellaways Clay Member)				
2.80-3.30	7	U	50			62.76	3.30			
3.30-3.40	8	D			Very stiff dark bluish grey sandy CLAY with occasional medium to coarse sand sized deposits of calcium carbonate.	62.66	3.40			
3.40-3.46	9	SPT <sub>c</sub>	N=1500*		(Kellaways Clay Member)	62.56	3.50			
3.40-3.50	10	D			Moderately weak light blue grey LIMESTONE.					
3.50-3.52	11	SPT <sub>c</sub>	N=3000*		(Cornbrash Formation)					
					Borehole terminated at 3.50m depth on very strong limestone.					

Boring Progress and Water Observations						Chiselling			General Remarks
Date	Time	Borehole Depth	Casing Depth	Casing Diameter	Water Depth	From	To	Duration (hh:mm)	
07/02/08	11:00	0.70	0.00	150	0.60	3.40	3.50	01:00	
07/02/08	11:20	0.70	0.00	150	0.55				
07/02/08	12:30	1.20	1.20	150	DRY				
07/02/08	16:00	3.50	1.60	150	DRY				

1. Inspection pit hand dug to 1.2m depth.  
2. Groundwater strike at 0.6m depth.  
3. Borehole progressed by chiselling between 3.40-3.50m depth (1.00hrs).  
4. 1 no. 50mm diameter standpipe installed to 3.5m depth (response zone 1.0-3.5m depth).

All dimensions in metres		Method	Drilled By	Logged By	Checked By	
Scale	<b>1:50</b>	<b>Cable Percussion</b>	<b>AL</b>	<b>TB</b>		



STRUCTURAL SOILS

BOREHOLE LOG

Contract	<b>Whitelands Farm, Oxford Road FAS, Bicester</b>	Client	<b>Thames Water Utilities Limited</b>	Borehole No	<b>BH5</b>
Job No	<b>721026</b>	Start	<b>08.02.08</b>	Ground Level	<b>65.28</b>
		End	<b>08.02.08</b>	Local Grid Co-Ordinates	<b>E:457963.2 N:221510.9</b>
				Sheet	<b>1 of 1</b>

Samples and In-situ Tests				Water	Instrumentation	Description of Strata	Reduced Level	Depth (Thickness)	Legend	
Depth	No	Type	Blows							
0.30	1A	ES				TOPSOIL: Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of limestone. Occasional pottery and shell fragments.	64.98	0.30		
0.50	1	D							(0.90)	
0.50	2A	ES				Soft mottled light brown and grey slightly sandy CLAY.				
						(Superficial Deposits)	63.88	1.40		
1.00	2	D				Soft light green brown with partings of light grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of limestone.			(0.70)	
1.00	3A	ES				(Superficial Deposits)	63.18	2.10		
1.40	3	D				Soft orange brown with partings of light grey slightly sandy CLAY with occasional gravel subangular to subrounded fine to medium of limestone.			(1.30)	
1.50-2.00	4	U	50			(Superficial Deposits)				
2.00-2.10	5	U+				Firm dark grey with partings of orange brown slightly sandy CLAY. Occasional gravel subangular to subrounded fine to medium limestone.				
2.00	7	D				(Kellaways Clay Member)				
2.10-2.55	6	SPT	N=7							
2.50	8	D								
3.00-3.30	9	U								
3.30-3.40	10	D								
3.40-3.43	11	SPT <sub>c</sub>	N=3000*		Moderately weak dark blue grey LIMESTONE.	61.78	3.50			
3.40-3.50	12	D			(Cornbrash Formation)					
3.50-3.53	13	SPT <sub>c</sub>	N=3000*		Borehole terminated at 3.50m depth on very strong limestone.					

Boring Progress and Water Observations						Chiselling			General Remarks
Date	Time	Borehole Depth	Casing Depth	Casing Diameter	Water Depth	From	To	Duration (hh:mm)	
08/02/08	10:15	1.50	1.50	150	DRY	3.30	3.50	01:00	
08/02/08	11:45	3.30	1.50	150	DRY				
08/02/08	12:45	3.50	1.50	150	DRY				

1. Inspection pit hand dug to 1.20m depth.  
2. Groundwater seepage at 1.40m depth.  
3. Borehole progressed by chiselling between 3.40-3.50m depth (1.00hrs).  
4. 1 no. 50mm diameter standpipe installed from to 3.5m depth (response zone 1.0-3.5m depth).

All dimensions in metres		Method	Drilled By	Logged By	Checked By	
Scale	<b>1:50</b>	<b>Cable Percussion</b>	<b>AL</b>	<b>TB</b>		

STRUCTURAL\_SOILS\_V6\_02.GLB - V8 - CABLE PERCUSSION LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02.GDT | 04/06/08 - 11:32

STRUCTURAL\_SOILS\_V6\_02.GLB - V8 - CABLE PERCUSSION LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02.GDT | 04/06/08 - 11:32



BOREHOLE LOG

Contract: Whitelands Farm, Oxford Road FAS, Bicester. Client: Thames Water Utilities Limited. Borehole No: BH6. Job No: 721026. Start/End: 11.02.08. Ground Level: 64.57. Local Grid Co-Ordinates: E:458104.9 N:221329.9. Sheet: 1 of 1.

Main borehole log table with columns: Depth, No, Type, Blows, Water, Instrumentation, Description of Strata, Reduced Level, Depth (Thickness), Legend. Includes soil descriptions like 'Soft light grey mottled light brown slightly sandy CLAY' and 'Firm dark grey CLAY'.

Summary table with sections: Boring Progress and Water Observations, Chiselling, General Remarks, and Method. Includes dates, times, depths, and remarks like 'Inspection pit hand dug to 1.20m depth'.

STRUCTURAL\_SOILS\_V8\_02\_GLB\_V8 - CABLE PERCUSSION LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02.GDT | 04/06/08 - 11:32



BOREHOLE LOG

Contract: Bicester Business Park. Client: London and Metropolitan International Developments Ltd. Borehole: BH07. Contract Ref: 728724. Start/End: 27.01.14. Ground Level: ---. Co-ordinates: ---. Sheet: 1 of 1.

Main borehole log table with columns: Depth, No, Type, Results, Water, Backfill, Description of Strata, Depth (Thickness), Material Graphic Legend. Includes soil descriptions like 'Firm brown slightly sandy CLAY' and 'Firm light brown very sandy CLAY'.

Summary table with sections: Boring Progress and Water Observations, Chiselling / Slow Progress, General Remarks, and Method. Includes dates, times, depths, and remarks like 'Inspection pit hand dug to 1.20m depth'.

GINI LIBRARY V8\_05\_GLB\_V8 - CABLE PERCUSSION LOG | 728724\_BICESTER\_BUSINESS\_PARK.GPJ - V8\_05 | 16/06/14 - 08:44 | AML. Structural Soils Ltd, Head Office - Bristol: The Old School, Stillhouse Lane, Bedminster, Bristol, BS3 4EB. Tel: 0117 947 1000, Fax: 0117 947 1004, Web: www.soils.co.uk, Email: ask@soils.co.uk



# STRUCTURAL SOILS

## TRIAL PIT LOG

Contract <b>Whitelands Farm, Oxford Road FAS, Bicester</b>		Client <b>Thames Water Utilities Limited</b>		Trialpit No <b>TP1</b>
Job No <b>721026</b>	Date <b>12.02.08</b>	Ground Level <b>66.22</b>	Local Grid Co-Ordinates <b>E:457790.5 N:221707.8</b>	Sheet <b>1 of 1</b>

Samples and In-situ Tests				Water	Description of Strata	Reduced Level	Depth (Thickness)	Legend
Depth	No	Type	Results					
0.00-0.30	1	B			MADE GROUND: Soft dark brown slightly sandy slightly gravelly clay TOPSOIL with occasional cobbles. Gravel is angular to subrounded fine to medium of limestone and red brick. Cobbles of limestone up to 65mm. Organic matter present.	65.72	0.50	
0.50-0.70	2	B			Firm dark orange dark slightly sandy CLAY with some cobbles of limestone up to 75mm diameter. (Superficial Deposits)	65.52	0.70	
0.70-0.85	3	B			Firm light yellow/orange brown slightly sandy slightly gravelly CLAY with some cobbles. Gravel is angular to subangular fine to coarse of limestone. Cobbles up to 110mm diameter of bioclastic limestone. (Superficial Deposits)	65.37	0.85	
0.85-1.00	4	D				Moderately weak to moderately strong light yellow grey coarse grained bioclastic LIMESTONE, moderately weathered. Occasional stronger core stones within weathered mass, up to very strong. Bedding discontinuities very closely spaced subhorizontal 0-5° stepped rough open 0-2mm infilled with stiff sandy clay. Joints medium spaced subvertical undulating rough open 0-2mm infilled with stiff sandy clay. (Cornbrash Formation)		(1.55)
2.00-2.20	5	D			Trial pit terminated on very strong limestone at 2.40m depth.	63.82	2.40	

Plan (Not to Scale)		General Remarks			
		<ol style="list-style-type: none"> <li>No groundwater encountered.</li> <li>Stable, no shoring required.</li> <li>19mm diameter disused metal pipe encountered at 0.20m depth (redundant water pipe?). Trial pit relocated 1.50m east.</li> <li>Slow progress below 1.00m depth - excavator generally 'ripping' up limestone along discontinuities.</li> </ol>			
All dimensions in metres	Method	Logged By	Checked By	AGS	
Scale <b>1:25</b>	<b>360° Tracked Excavator</b>	<b>TB</b>			

STRUCTURAL\_SOILS\_V6\_02.GLB - V8 - TRIALPIT LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02.GDT | 04/06/08 - 11:38



# STRUCTURAL SOILS

## TRIAL PIT LOG

Contract <b>Whitelands Farm, Oxford Road FAS, Bicester</b>		Client <b>Thames Water Utilities Limited</b>		Trialpit No <b>TP2</b>
Job No <b>721026</b>	Date <b>12.02.08</b>	Ground Level <b>67.37</b>	Local Grid Co-Ordinates <b>E:457929.0 N:221633.9</b>	Sheet <b>1 of 1</b>

Samples and In-situ Tests				Water	Description of Strata	Reduced Level	Depth (Thickness)	Legend
Depth	No	Type	Results					
0.00-0.30	1	B			TOPSOIL: Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium of limestone.	66.82	0.55	
0.50-0.70	2	B			Stiff orange brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium of limestone. (Superficial Deposits)	66.57	0.80	
0.70	V		$c_u=100/110/120$		Stiff mottled light blue grey and orange brown slightly gravelly CLAY. Gravel is angular to subrounded fine to medium of limestone. (Superficial Deposits)	66.37	1.00	
0.80-1.00	3	D				Stiff light blue grey with frequent partings of orange brown slightly sandy CLAY with frequent coarse sand size calcium carbonate deposits. (Superficial Deposits)		(0.70)
1.00	V		$c_u=116/140/120$		Stiff mottled blue grey and orange brown slightly sandy CLAY. (Kellaways Clay Member)	65.67	1.70	
1.20-1.40	4	D				... becoming blocky from 2.2m depth.		(1.00)
1.70-2.00	5	D			Stiff mottled blue grey, orange brown and cream slightly gravelly CLAY. Gravel is angular to subrounded fine to medium of limestone. (Kellaways Clay Member)	64.67	2.70	
2.00-2.20	6	D				Stiff blocky dark blue grey CLAY. (Kellaways Clay Member)	64.37	3.00
2.70-2.90	7	D			Stiff blocky dark blue grey CLAY. (Kellaways Clay Member)		(1.00)	
3.00-3.10	8	D				Trial pit terminated at 4.00m depth (excavator's maximum reach).	63.37	4.00
3.30-3.50	9	D						
3.70-3.80	10	D						

Plan (Not to Scale)		General Remarks			
		<ol style="list-style-type: none"> <li>No groundwater encountered.</li> <li>Stable, no shoring required.</li> <li>Pit stepped at 1.0m depth, initially 2.0m wide.</li> </ol>			
All dimensions in metres	Method	Logged By	Checked By	AGS	
Scale <b>1:25</b>	<b>360° Tracked Excavator</b>	<b>TB</b>			

STRUCTURAL\_SOILS\_V6\_02.GLB - V8 - TRIALPIT LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02.GDT | 04/06/08 - 11:38



# STRUCTURAL SOILS

## TRIAL PIT LOG

Contract	<b>Whitelands Farm, Oxford Road FAS, Bicester</b>	Client	<b>Thames Water Utilities Limited</b>	Trialpit No	<b>TP3</b>
Job No	<b>721026</b>	Date	<b>12.02.08</b>	Ground Level	<b>65.81</b>
				Local Grid Co-Ordinates	<b>E:457988.9 N:221547.9</b>
				Sheet	<b>1 of 1</b>

Samples and In-situ Tests				Water	Description of Strata	Reduced Level	Depth (Thickness)	Legend
Depth	No	Type	Results					
0.00-0.30	1	B	c <sub>u</sub> =116/110/120	~	TOPSOIL: Soft dark brown slightly sandy CLAY with occasional gravel. Gravel is subangular to subrounded fine to coarse of limestone. Organic matter present.	65.51	(0.30)	
0.30-0.60	2	B			Firm light orange brown slightly sandy CLAY with occasional gravel. Gravel is subrounded to rounded fine to medium of limestone. (Superficial Deposits)	65.21	(0.30)	
0.70-1.00	3	B			Stiff light blue grey with frequent partings of light brown CLAY. (Superficial Deposits)	64.61	1.20	
0.80	V							
1.20-1.40	4	B			Stiff light blue grey CLAY with frequent pockets of light orange brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of limestone. (Superficial Deposits)	63.91	1.90	
1.90-2.10	5	B			Stiff dark blue grey slightly sandy CLAY with frequent coarse sand size deposits of calcium carbonate. (Kellaways Clay Member)			
2.50-2.70	6	D			... calcium carbonate deposits becoming occasional from 2.5m depth.	62.81	3.00	
3.00-3.30	7	D			Stiff blocky dark grey CLAY. (Kellaways Clay Member)			
3.50-3.60	8	B	... frequent shells and shell fragments of fine to coarse gravel size from 3.5m depth. Terminated at 3.60m depth on very strong planar obstruction (limestone).	62.21	3.60			

Plan (Not to Scale)	General Remarks		
	1. Seepage at 1.3m depth. 2. Stable, no shoring required. 3. Pit stepped at 1.0m depth, initially 2.1m wide.		
All dimensions in metres Scale <b>1:25</b>	Method <b>360° Tracked Excavator</b>	Logged By <b>TB</b>	Checked By <b>AGS</b>

STRUCTURAL\_SOILS\_V6\_02.GLB - V8 - TRIALPIT LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02.GDT | 04/06/08 - 11:38



# STRUCTURAL SOILS

## TRIAL PIT LOG

Contract	<b>Whitelands Farm, Oxford Road FAS, Bicester</b>	Client	<b>Thames Water Utilities Limited</b>	Trialpit No	<b>TP4</b>
Job No	<b>721026</b>	Date	<b>11.02.08</b>	Ground Level	<b>64.50</b>
				Local Grid Co-Ordinates	<b>E:457989.8 N:221457.9</b>
				Sheet	<b>1 of 1</b>

Samples and In-situ Tests				Water	Description of Strata	Reduced Level	Depth (Thickness)	Legend		
Depth	No	Type	Results							
0.00-0.30	1	D	c <sub>u</sub> =108/80/140	~	TOPSOIL: Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of limestone with frequent shell fragments.	64.10	(0.40)			
0.40-0.70	2	D			Stiff mottled light grey and brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of limestone and frequent shell fragments. (Superficial Deposits)	63.80	(0.30)			
0.60	V				63.50	1.00				
0.70-0.90	3	D						Soft orange brown sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of limestone. Fine to medium size gravel of ash. (Superficial Deposits)		
1.00-1.20	4	D			c <sub>u</sub> =100/110/110	~	Stiff light blue grey CLAY with lenses of orange brown slightly sandy CLAY. (Kellaways Clay Member)	61.50	3.00	
1.00	V									
1.80-2.00	5	B			... becoming darker blue grey from 2.3m depth.	~			(2.00)	
2.30-2.50	6	D								
2.70-2.90	7	D								
Trial pit terminated on very strong planar obstruction throughout the pit at 3.00m depth (limestone).										

Plan (Not to Scale)	General Remarks		
	1. Seepage at 1.0m depth. 2. Instability between G.L. and 2.0m depth. 3. Pit stepped at 1.0m depth, initially 2.0m wide.		
All dimensions in metres Scale <b>1:25</b>	Method <b>360° Tracked Excavator</b>	Logged By <b>TB</b>	Checked By <b>AGS</b>

STRUCTURAL\_SOILS\_V6\_02.GLB - V8 - TRIALPIT LOG | 721026\_WHITELANDS\_FARM\_BICESTER.GPJ - STRUCTURAL\_SOILS\_V6\_02.GDT | 04/06/08 - 11:38



TRIAL PIT LOG

Contract	<b>Whitelands Farm, Oxford Road FAS, Bicester</b>	Client	<b>Thames Water Utilities Limited</b>	Trialpit No	<b>TP5</b>
Job No	<b>721026</b>	Date	<b>11.02.08</b>	Ground Level	<b>64.43</b>
				Local Grid Co-Ordinates	<b>E:458025.1 N:221409.2</b>
				Sheet	<b>1 of 1</b>

Samples and In-situ Tests				Water	Description of Strata	Reduced Level	Depth (Thickness)	Legend
Depth	No	Type	Results					
0.00-0.40	1	D			TOPSOIL: Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium of weak limestone.	64.03	0.40	
0.40-0.70	2	D	c <sub>u</sub> =110/140		Firm light grey brown with some partings of orange brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium of limestone. (Superficial Deposits)	63.43	1.00	
0.50	V							
1.00-1.20	3	B			Soft light grey brown sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of limestone. (Superficial Deposits)	63.23	1.20	
1.20-1.40	4	B			Soft light grey slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse of limestone and flint. (Superficial Deposits)	62.63	1.80	
1.80-2.00	5	D			Stiff dark grey CLAY. (Kellaways Clay Member)			
2.00	6	W	c <sub>u</sub> =92/110					
2.00	V							
					... becoming blocky from 3.0m depth.			
3.20-3.50	7	D						
3.50-3.60	8	D			Trial pit terminated at 3.60m depth on very strong planar obstruction (limestone).	60.83	3.60	

Plan (Not to Scale)	General Remarks		
	1. Groundwater seepage from between 1.0-1.4m depth. 2. Some instability between 0.5m and 2.0m depth.		
All dimensions in metres	Method	Logged By	Checked By
Scale <b>1:25</b>	<b>360° Tracked Excavator</b>	<b>TB</b>	<b>AGS</b>

CONTRACT:  
 GROUND INVESTIGATION FOR WHITELANDS FARM, OXFORD ROAD FAS BICESTER  
 CONTRACT NUMBER: 721026

**PHOTOGRAPHS OF TRIAL PIT 1**

TP1	G.L - 2.40m	
TP1	G.L - 1.20 m	



CONTRACT:  
GROUND INVESTIGATION FOR WHITELANDS FARM, OXFORD ROAD FAS BICESTER

CONTRACT NUMBER: 721026

PHOTOGRAPHS OF TRIAL PIT 1

TP1 0.85 – 2.40 m



TP1 SPOIL



CONTRACT:  
GROUND INVESTIGATION FOR WHITELANDS FARM, OXFORD ROAD FAS BICESTER

CONTRACT NUMBER: 721026

PHOTOGRAPHS OF TRIAL PIT 2

TP2 G.L – 3.00 m

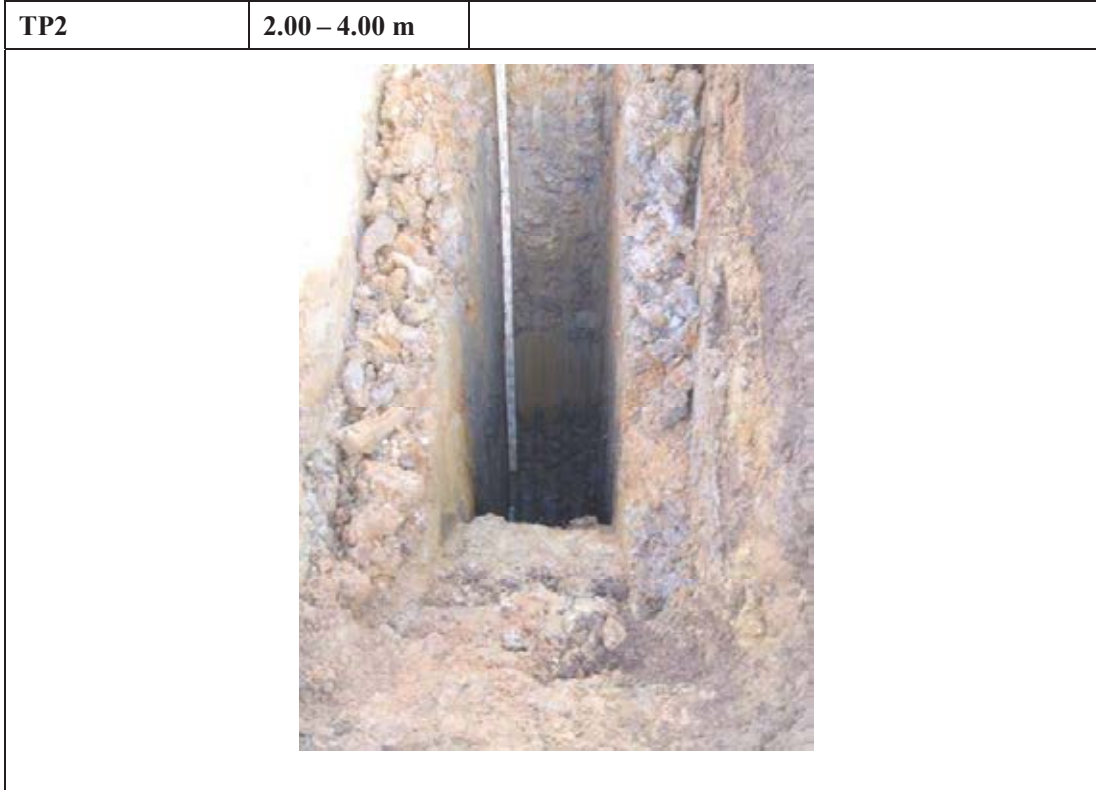


TP2 G.L – 1.70 m



**CONTRACT:**  
**GROUND INVESTIGATION FOR WHITELANDS FARM, OXFORD ROAD FAS BICESTER**  
**CONTRACT NUMBER: 721026**

**PHOTOGRAPHS OF TRIAL PIT 2**

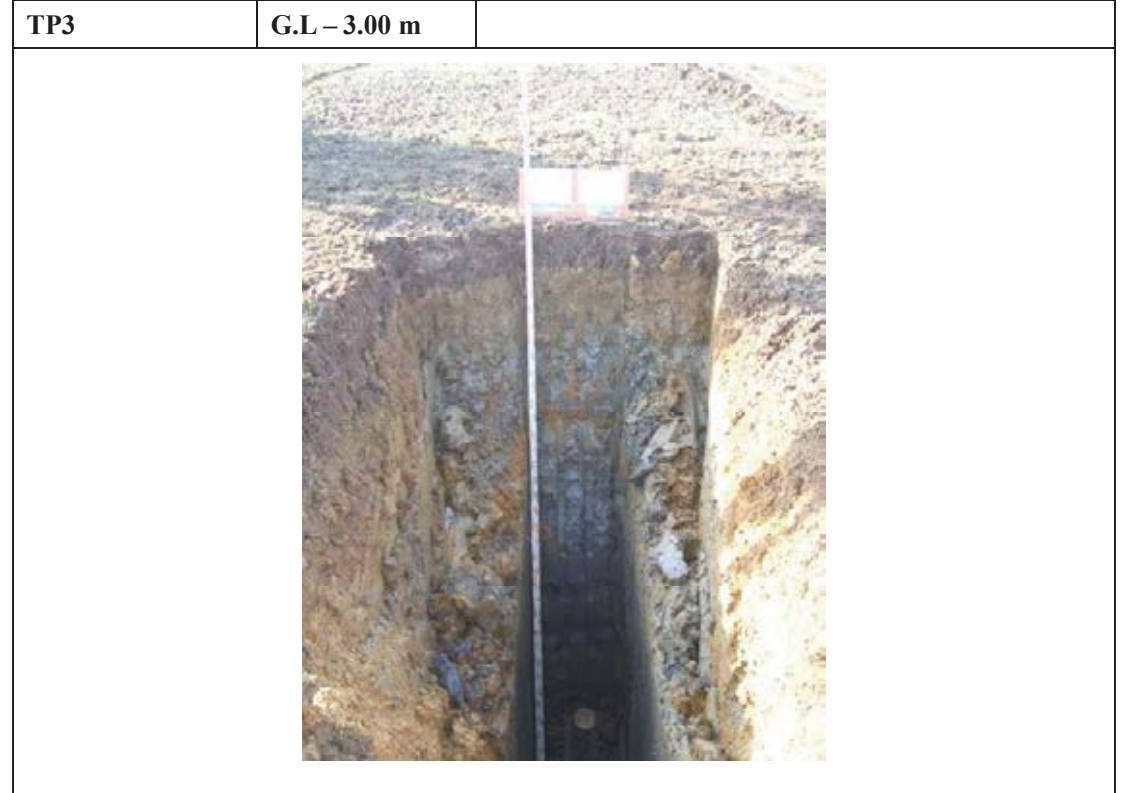


<b>TP2</b>	<b>SPOIL</b>
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**CONTRACT:**  
**GROUND INVESTIGATION FOR WHITELANDS FARM, OXFORD ROAD FAS BICESTER**  
**CONTRACT NUMBER: 721026**

**PHOTOGRAPHS OF TRIAL PIT 3**



<b>TP3</b>	<b>G.L – 1.20 m</b>
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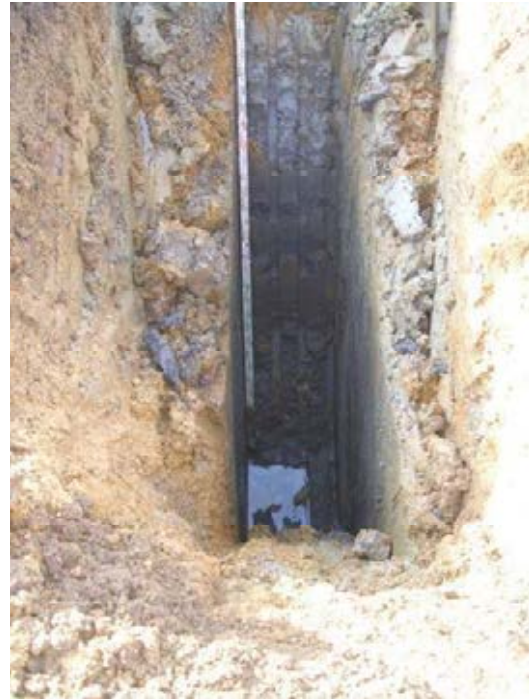


**CONTRACT:**  
**GROUND INVESTIGATION FOR WHITELANDS FARM, OXFORD ROAD FAS BICESTER**

**CONTRACT NUMBER: 721026**

**PHOTOGRAPHS OF TRIAL PIT 3**

**TP3**      **1.60 – 3.60 m**



**TP3**      **SPOIL**



**CONTRACT:**  
**GROUND INVESTIGATION FOR WHITELANDS FARM, OXFORD ROAD FAS BICESTER**

**CONTRACT NUMBER: 721026**

**PHOTOGRAPHS OF TRIAL PIT 4**

**TP4**      **G.L – 3.00 m**



**TP4**      **G.L – 1.20 m**



**CONTRACT:**  
**GROUND INVESTIGATION FOR WHITELANDS FARM, OXFORD ROAD FAS BICESTER**

**CONTRACT NUMBER: 721026**

**PHOTOGRAPHS OF TRIAL PIT 4**

**TP4**      **G.L – 1.20 m**



**TP4**      **SPOIL**



**CONTRACT:**  
**GROUND INVESTIGATION FOR WHITELANDS FARM, OXFORD ROAD FAS BICESTER**

**CONTRACT NUMBER: 721026**

**PHOTOGRAPHS OF TRIAL PIT 5**

**TP5**      **G.L – 3.00 m**



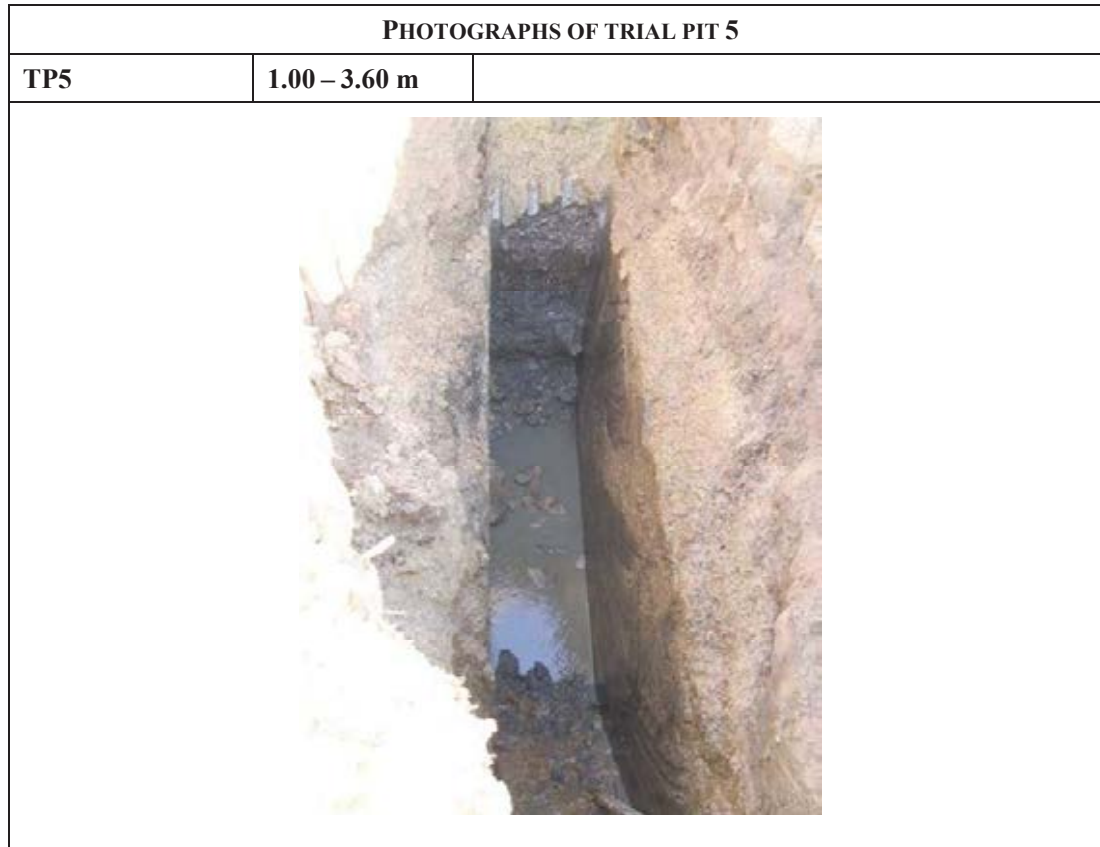
**TP5**      **G.L – 1.00 m**





**CONTRACT:**  
**GROUND INVESTIGATION FOR WHITELANDS FARM, OXFORD ROAD FAS BICESTER**  
**CONTRACT NUMBER: 721026**

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP06</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>1 of 2</b>



Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	D				POSSIBLE MADE GROUND: Grass over firm brown slightly gravelly slightly sandy CLAY. Sand is fine. Gravel is fine to coarse angular argillaceous limestone. (TOPSOIL)	0.25	[Cross-hatch pattern]
0.50	2	D				Firm light yellowish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse angular to sub angular argillaceous limestone.	(0.85)	[Horizontal line pattern]
0.60	3	LB						
1.00	4	D				Light greyish yellowish brown angular COBBLES with some boulders of argillaceous limestone with some finer material of gravelly sandy CLAY. Boulders are up to 300mm.	1.10	[Circular pattern]
1.50	5	D					1.30	[Circular pattern]
1.50	6	B				Firm to stiff blueish grey mottled brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular fine to coarse argillaceous limestone.	1.50	[Horizontal line pattern]
Trial pit terminated at 1.50m depth.								

<p>Plan (Not to Scale)</p>	<p><b>General Remarks</b></p> <ol style="list-style-type: none"> <li>1. Groundwater seepage at 0.5m caused instability from 1.1m-1.3m depth.</li> <li>2. Trial pit backfilled on completion.</li> <li>3. No hand vane tests undertaken due to high gravel content of clay soils.</li> </ol>	
All dimensions in metres		Scale: <b>1:25</b>
Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>
		Checked By: <b>AML</b>

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TRIAL PIT LOG

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP06</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>2 of 2</b>

Trial pit 06 north face



Trial pit 06 east face

Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>	Checked By: <b>AML</b>	
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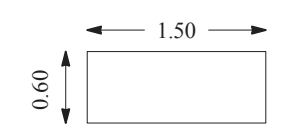


TRIAL PIT LOG

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP07</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>1 of 2</b>

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20 0.20	1	D V	$c_u=53/38/61$			Crops over firm medium strength brown sandy CLAY. Sand is fine to coarse. (TOPSOIL)	0.25	
0.40 0.40	2	D V	$c_u=92/84$			Firm high strength light orangish brown sandy CLAY. Sand is fine.	(0.75)	
						Stiff blueish grey mottled brown slightly sandy CLAY.	1.00	
1.20 1.30 1.30	3 4	D LB V	$c_u=95/88/82$			Stiff high strength orangish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular argillaceous limestone.	(0.30)	
						Trial pit terminated at 1.50m depth.	1.50	

Plan (Not to Scale)



General Remarks

1. Groundwater seepage at 0.6m depth.
2. Trial pit stable during excavation.
3. Trial pit backfilled with arisings on completion.

All dimensions in metres Scale: **1:25**

Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>	Checked By: <b>AML</b>	
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TRIAL PIT LOG

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP07</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>2 of 2</b>

Trial pit 07 north face



Trial pit 07 west face

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Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>	Checked By: <b>AML</b>	
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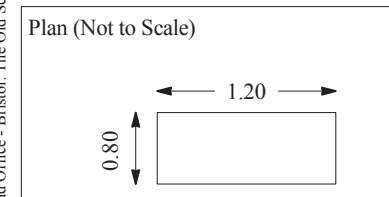


TRIAL PIT LOG

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP08</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>1 of 2</b>

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10 0.15	1	V D	$c_u=38/40/49$			Crops over firm medium strength brown slightly sandy CLAY. Sand is fine to coarse. (TOPSOIL)	(0.30) 0.30	
0.50 0.50	2	D V	$c_u=81/90/92$			Stiff high strength light organish brown sandy CLAY. Sand is fine.	(0.60) 0.90	
0.70	3	LB						
1.20 1.30 1.40	4 4 V	D LB V	$c_u=89/92/97$			Stiff high strength blueish grey mottled brown slightly sandy CLAY with fine to medium gravel sized inclusions of powdery gypsum.	(0.60) 1.50	
Trial pit terminated at 1.50m depth.								

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General Remarks

1. No groundwater encountered during excavation.
2. Trial pit stable during excavation.
3. Trial pit backfilled with arisings on completion.

All dimensions in metres Scale: **1:25**

Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>	Checked By: <b>AML</b>	
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TRIAL PIT LOG

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP08</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>2 of 2</b>

Trial pit 08 north face



Trial pit 08 east face

Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>	Checked By: <b>AML</b>	
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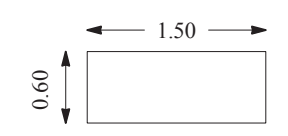


TRIAL PIT LOG

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP09</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>1 of 2</b>

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15 0.20	1	V D	$c_u=58/66/63$			MADE GROUND: Crops over firm medium strength brown slightly gravelly slightly sandy CLAY. Sand is fine to medium. Gravel is fine to medium angular brick. (Topsoil).	(0.35)	
0.60 0.70	2	D V	$c_u=32/41/38$			POSSIBLE MADE GROUND: Firm low strength light orangish brown slightly gravelly sandy locally very sandy CLAY. Sand is fine to coarse. Gravel is fine to medium charcoal.	(0.95)	
1.50 1.50 1.50	3 4	D LB V	$c_u=82/79/84$			Firm to stiff high strength blueish grey slightly sandy CLAY. Sand is orangish brown fine to coarse.	(0.30)	
Trial pit terminated at 1.60m depth.							1.60	

Plan (Not to Scale)



General Remarks

1. Groundwater seepage from 1.40m depth.
2. Trial pit stable during excavation.
3. Trial pit backfilled with arisings on completion.

All dimensions in metres Scale: **1:25**

Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>	Checked By: <b>AML</b>	
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TRIAL PIT LOG

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP09</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>2 of 2</b>

Trial pit 09 west face



Trial pit 09 south face

Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>	Checked By: <b>AML</b>	
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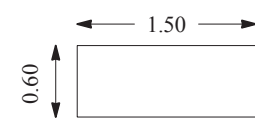


TRIAL PIT LOG

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP10</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>1 of 2</b>

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.15 0.15	1	D V	$c_u=42/48/45$			MADE GROUND: Crops over medium strength firm medium strength dark grey slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse angular brick.	0.25	
0.50 0.50	2	D V	$c_u=68/75/82$			Firm high strength blueish grey slightly sandy CLAY. Sand is fine.	(0.75)	
0.70	3	B					1.00	
1.20	5	B				Orangeish brown clayey very sandy GRAVEL. Gravel of angular to subrounded flint and limestone.	(0.30) 1.30	
2.00	6	LB				Firm to stiff high strength blueish grey slightly sandy slightly organic CLAY. Organic component is decayed plants remains. Sand is orangish brown fine.	(1.10)	
2.40 2.40	4	D V	$c_u=74/78/76$			Trial pit terminated at 2.40m depth.	2.40	

Plan (Not to Scale)



General Remarks

1. Groundwater seepage at 1.0m caused instability from 1.0m-1.3m depth.
2. Trial pit backfilled with arisings on completion.

All dimensions in metres Scale: **1:25**

Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>	Checked By: <b>AML</b>	
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TRIAL PIT LOG

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP10</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>2 of 2</b>

Trial pit 10 east face



Trial pit 10 south face

Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>	Checked By: <b>AML</b>	
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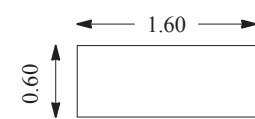


TRIAL PIT LOG

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP11</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>1 of 2</b>

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10 0.15	1	V D	$c_u=46/48/52$			MADE GROUND: Crops over firm medium strength slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is fine to medium subangular limestone and brick.	(0.30) 0.30	
0.50 0.50 0.50	2 3	D B V	$c_u=62/67/71$			Firm to stiff medium strength blueish mottled orangeish brown slightly sandy CLAY. Sand is fine.	(0.80)	
1.20	4	LB				Orangish brown clayey very sandy GRAVEL. Gravel of fine to coarse angular to rounded limestone and flint. Sand is fine to coarse.	(0.50)	
2.00	5	D				Stiff high strength blueish grey slightly sandy CLAY. Sand is orangish brown fine to coarse.	(0.90)	
2.40 2.50	6	V B	$c_u=125/124/128$			Trial pit terminated at 2.50m depth.	2.50	

Plan (Not to Scale)



General Remarks

1. Trial Pit position CAT scanned prior to excavation.
2. No groundwater encountered.
3. Trial Pit stable during excavation.
4. Trial Pit backfilled with arisings on completion.

All dimensions in metres Scale: **1:25**

Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>	Checked By: <b>AML</b>	
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STRUCTURAL SOILS

TRIAL PIT LOG

Contract: <b>Bicester Business Park</b>		Client: <b>London and Metropolitan International Developments Ltd</b>		Trial Pit: <b>TP11</b>
Contract Ref: <b>728724</b>	Start: <b>27.01.14</b> End: <b>27.01.14</b>	Ground Level: <b>---</b>	Co-ordinates: <b>---</b>	Sheet: <b>2 of 2</b>

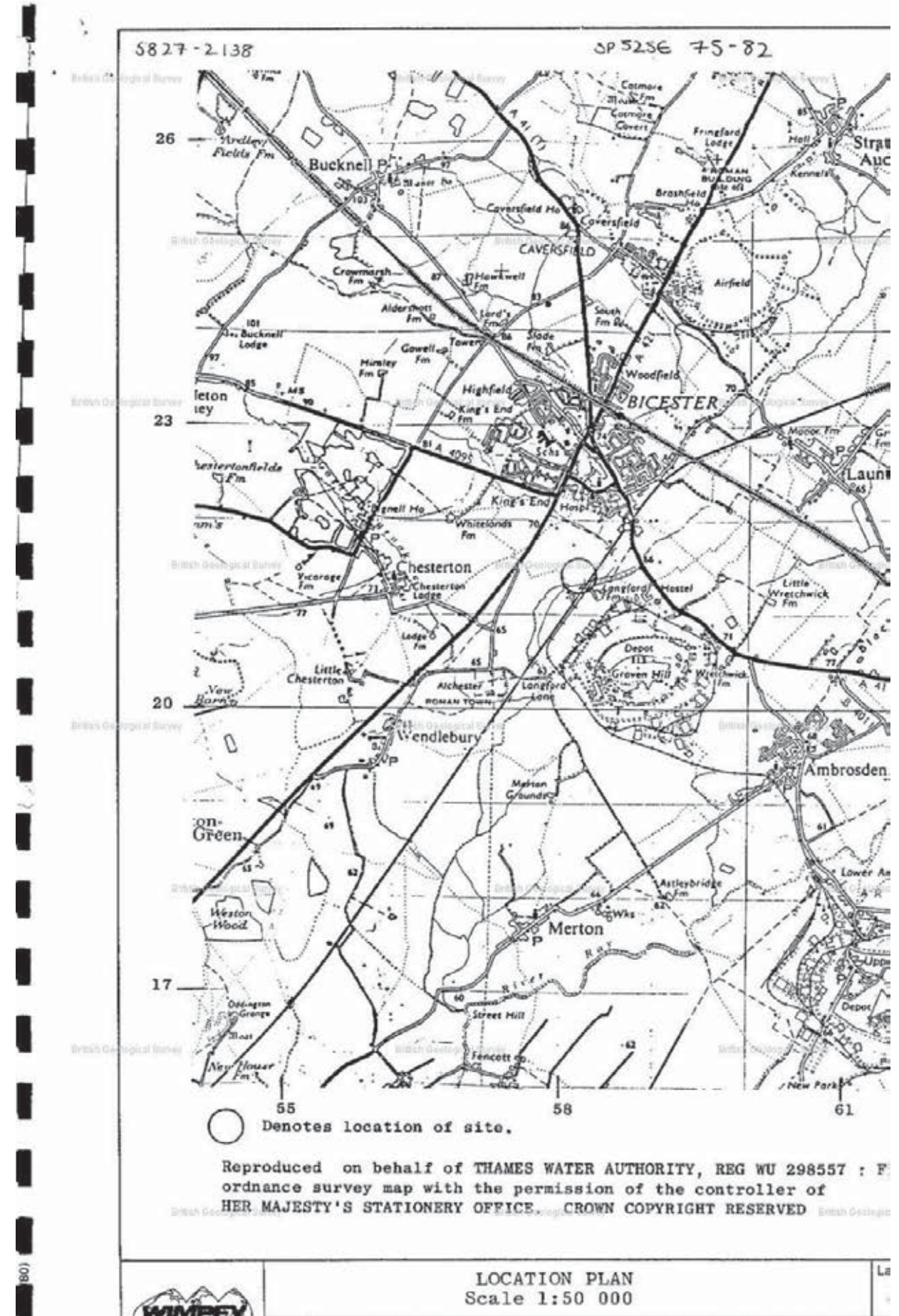
Trial pit 11 west face



Trial pit 11 south face

Method Used: <b>Machine dug</b>	Plant Used: <b>JCB-3CX</b>	Logged By: <b>WHunter</b>	Checked By: <b>AML</b>	
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British Geological Survey

**SP 52 SE/78 [5827 2138] Bicester Sewage Works Borehole 421/4 (1986) Datum c. +68.4 (Ground level)**

	Thickness m	Depth m
[? Made Ground and] Kellaways Formation:		
Kellaways Sand Member	7.80	7.80
Kellaways Formation: Kellaways Clay Member	2.80	10.60
Combrash Formation	1.00	11.60

Stratigraphical classification by M G Sumbler, May 1999.

British Geological Survey

Boring method	Shell and Auger	Boring diameter (mm)	150 to 11.60m	Record of	5
Boring equipment	Pilcon Wayfarer	Casing diameter (mm)	150 to 10.60m	<b>BOREHO</b>	
Location	See Site Plan	Orientation	Vertical	Ground level (m O D)	68.45
				Date commenced	10.6.86
Sheet 1 of					


Depth (m)	Type	Casing depth (m)	Water depth (m)	Date and Depth (m)	Description of Strata	O.C. Level (m O D)
0.30	Dj			10/6	TOPSOIL	
0.50	U100	None		0.45	Grading to Firm friable brown sandy silty CLAY	68.4
				0.70	Dark brown organic silty clay #	67.7
1.00	Dj				Firm to stiff friable becoming dark grey with depth sandy silty CLAY with fibrous roots and occasional calcareous nodules	
1.25	Dj					
1.50	U100	None				
2.00	Dj			2.20		66.0
2.25	Dj					
2.50	GWe		GWe		Stiff fissured brown-grey with yellow patches silty CLAY	
2.60	U100	2.00	2.50			
3.10	Dj					
3.25	Dj					
3.60	U100	3.00		3.70		64.0
4.00	Dj				Stiff fissured fissile dark grey silty CLAY with occasional shell debris and silt partings	
4.25	Dj					
4.50	U100	4.00				
5.00	Dj					
5.25	Dj			5.40		53.0
5.50	U100	4.00				
6.00	Dj				Dense to very dense dark grey clayey very silty fine SAND becoming coarser with depth	
6.00	C(43)					
6.00	Db					
6.75	Dj					
7.05	C(44)	7.00				
7.05	Db					
7.60	U100	7.00		7.80		60.0
			GWe			
8.10	Dj		7.80			
8.25	Dj					
8.50	U100	7.00			Stiff fissured fissile dark grey silty CLAY with occasional silt partings, shell debris and pyrite masses. A thin layer of dark grey calcareous shelly clay at base	
9.00	Dj					
9.30	Dj					
9.60	U100	9.00				

Remarks: Ground-water was encountered at 2.50m; level rose to 2.30m in 30 minutes. Ground-water was also encountered at 7.80m; level rose to 7.77m in 15 minutes. Ground-water was sealed off by lining casings between 3.00m and 7.80m, also between 8.00m and 11.60m.

# Drillers description.

**BOREHOLE RECORD**  
Scale 1 : 50  
For explanation of symbols and abbreviations see Key Sheet  
T.W.A. - BICESTER SEWAGE TREATMENT WORKS

Lab # S/  
Fig.

Boring method		Boring diameter (mm)		Record of BOREHOLE	
Boring equipment		Casing diameter (mm)		(Sheet 2 of 3)	
Location		Orientation		Ground level (m O D) 68.45 Date commenced 10.6.86	
Samples and in situ tests		Water depth (m)		Date and Depth (m)	
Depth (m) Type		Casing depth (m)		Description of Strata	
10.10 Dj				(See previous sheet)	
10.20 Dj					
10.60 Dj				10.50	
10.65 C(>50)		10.50		Dark grey coarse crystalline LIMESTONE, moderately strong	
10.65 Db					
11.60 c(>50)		10.60			
11.60 Db				11.60	
END OF BOREHOLE					
Remarks: Borehole was advanced by chiselling between 10.60m and 11.60m. On completion of boring the borehole was backfilled with spoil.					
<b>BOREHOLE RECORD</b> Scale 1 : 50				Lab Ref	
For explanation of symbols and abbreviations see Key Sheet				S/A	
				Fig.	

Site Name: <b>Bicosta</b>		Job No:		Date: <b>11/11/16</b>		Sheet <b>1</b> of <b>3</b>		Borehole No: <b>Water Well</b>	
Soil Description		Depth (m)		U100s		Standard Penetration Tests		Casing	
Start of Shift		From To		Blows		Length		Depth (m)	
<b>01-05 Brick fill</b>									
<b>05-14 Limestone</b>									
<b>14-23 grey compact clay</b>									
<b>23-103 Limestone/mudstone beds</b>									
Water Entries		From To		Time		Visits		Water Level (m)	
Depth struck								<b>8.0 Seepage</b>	
Casing Depth									
Depth 5 mins									
Depth 10 mins									
Depth 20 mins									
Cut off at									
Water Added		From To		Perc/Sand/Silt					
Water Added									
Borehole kept full									
Retention/Sand/Silt		From To							
Pump Flow		From To							
Slotted Pipe									
Filter									
Bentonite Seal									
Grout/Backfill									
Borehole Diameter (m)									
End of Shift - Borehole Complete/Incomplete									
Remarks: (Standing time, day works, visitors, weather etc.)		Driller: <b>C. Co</b>		Rig: <b>masenza</b>		Additional Equipment:			
		Crew: <b>Jack</b>							
		Excavator:		Backfill:		Total Number of Samples			
						SPT U D B W P			
Driller's Name		Driller's Signature		Client's Signature		Received:		Approved:	

**DRILLER'S LOG**  
 Email: info@geologic.co.uk • Telephone: 01404 822032  
 Unit 2, Moonview Industrial Estate, Straightway Head, Whimble, Exeter EX5 2QT  
 www.geologic.co.uk

Site Name: Bicester Job No: \_\_\_\_\_ Date: 14/11/16 Sheet 2 of 3 Borehole No: waterwell

Depth (m)	Soil Description	Sample/Test		Depth (m)	U100s	Standard Penetration Tests						Casing Depth (m)	Water Level (m)	Chiselling				
		Type	No.			Blows	Length	1	2	3	4			5	6	Pen	From	To
	Start of Shift																	
10.5-37.5	Mudstone with bands of clay																	
37.5-39.0	Sandstone																	
39.0-45.0	Mudstone with clay bands																	
Water in morning @ 8 water increased with depth Standing level at end of day GL																		

End of Shift - Borehole Complete/Incomplete  
 Remarks: (Standing time, day works, visitors, weather etc.)

Driller: C Cox Rig: Massenza  
 Crew: Jack Additional Equipment:  
 Excavation: \_\_\_\_\_ Backfill: \_\_\_\_\_

Driller's Name: \_\_\_\_\_ Driller's Signature: \_\_\_\_\_ Client's Signature: \_\_\_\_\_ Received: \_\_\_\_\_ Approved: \_\_\_\_\_

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 www.geologic.co.uk

Site Name: Bicester Job No: \_\_\_\_\_ Date: 16/11/16 Sheet 3 of 3 Borehole No: waterwell

Depth (m)	Soil Description	Sample/Test		Depth (m)	U100s	Standard Penetration Tests						Casing Depth (m)	Water Level (m)	Chiselling				
		Type	No.			Blows	Length	1	2	3	4			5	6	Pen	From	To
	Start of Shift																	
	install (6inch)																	
45.0-30.0	Slotted																	
30.0-GL	Plain																	
45.0-15.0	Gravel																	
15.0-GL	Bento																	
3m permanent steel casing installed 2.5m plain install left above GL.																		

Water in morning Artesian 1.5m above GL

End of Shift - Borehole Complete/Incomplete  
 Remarks: (Standing time, day works, visitors, weather etc.)

Driller: C Cox Rig: Massenza  
 Crew: Jack Additional Equipment:  
 Excavation: \_\_\_\_\_ Backfill: \_\_\_\_\_

Driller's Name: \_\_\_\_\_ Driller's Signature: \_\_\_\_\_ Client's Signature: \_\_\_\_\_ Received: \_\_\_\_\_ Approved: \_\_\_\_\_

## Appendix C – Preliminary UXO risk assessment

This Preliminary UXO Risk Assessment has been carried out by BuroHappold in accordance with CIRIA C681. The purpose of the preliminary risk assessment is a qualitative screening exercise to assess the likelihood of finding UXO at the site. This can then be used to make an informed decision if further UXO specific risk management is required.

The assessment is based on data obtained from a desktop review of information, including site location, bombing records, historical uses, historical development and proposed development.

Item	Comments	Score
Site Setting	Site is located south of Bicester, during WWII rural	1 (Table 8-1Row A)
Site description and historical land usage	Agricultural land, however Bicester Airfield located 3km north east	4 (Table 8-1Row B)
Record of bombing	Bicester was bombed, but low frequency of bombing.	4 (Table 8-1Row C)
Level of post war development	No development	0 (Table 8-2 Row D)
Level of proposed intrusive works	About 50% of site to be developed, including landscaping and foundations, not car park	-1 (Table 8-2 Row E)
Assessed Risk	Low	8 (Sum of the above)
Recommendations	The assessment found risk associated with UXO to be low, no further assessment works are therefore required.	
Attachments	<b>Table 8-1</b> - potential aerial delivered UXO hazards <b>Table 8-2</b> - mitigation factors <b>Table 8-3</b> - Final score summary <b>Attachment 1</b> – Bicester bombing record <b>Attachment 2</b> - Pre- WWII Historical Map <b>Attachment 3</b> – Post – WWII Historical Maps <b>Attachment 4</b> – Proposed Development	

Table 8-1 Scoring process for indicators of potential aerial delivered UXO hazards

Data Item	Increasing Potential for aerial delivered UXO Hazards			
	1	2	4	8
A - Site Setting	Rural	Small towns	Cities  Large Towns	
B - Site description and historical land usage	Greenfield site only  Agricultural land only	Residential only  Within 10 mile radius of site of previous military use  Within 5 mile radius of wartime <sup>1</sup> for following: Railway marshalling yard Power station Gas works Port Industrial centre	Within 5 mile radius of site of previous military use  Within 1 mile radius of wartime <sup>1</sup> for following: Railway marshalling yard Power station Gas works Port Industrial centre  On wartime <sup>1</sup> flight paths	Within 1 mile radius of site of previous military use  Former wartime <sup>1</sup> : Railway marshalling yard Power station Gas works Port Industrial centre
C - Record of bombing	No history of WWII bombing	Within 10 mile radius of area of known WWII bombing	Within 5 mile radius of area of known WWII bombing	Area of known WWII bombing

<sup>1</sup>Wartime refers to the site being in use at the time of WWI and WWII when its significance may have caused it to be the target of an enemy attack.

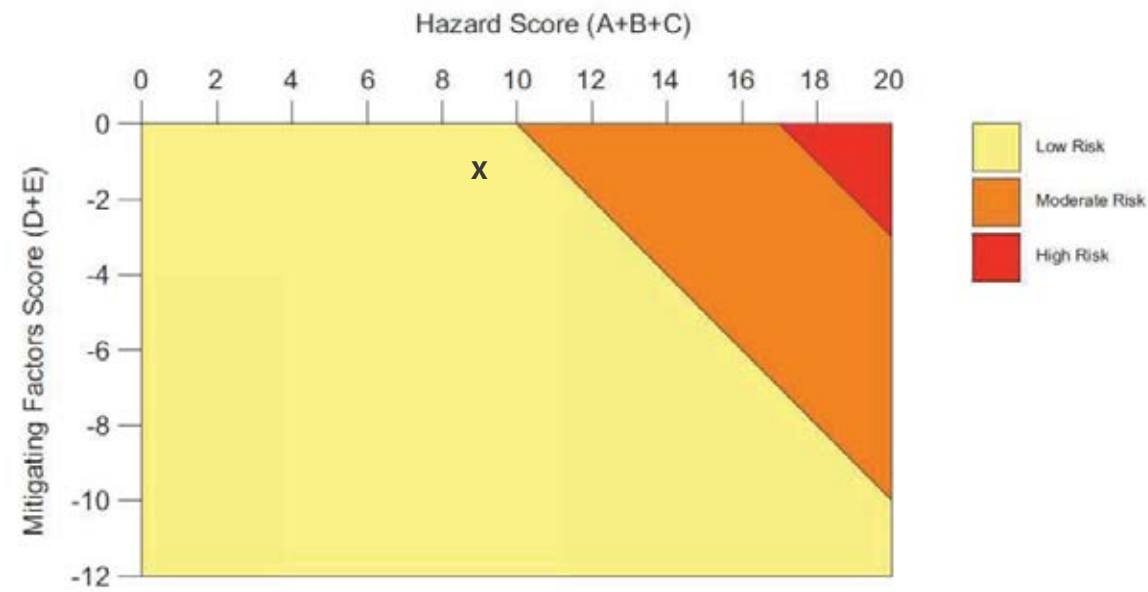
Table 8-2 Scoring process for considering mitigation factors

Data Item	Decreasing Potential for aerial delivered UXO Hazards				
	-6	-5	-3	-1	0
D - Level of post war development	Whole site redevelopment (100% of the site)	Significant post war development (>80% of the site)	Moderate level of post war development (<80% and ≥45% of the site)	Some post war development (<45% and ≥10% of the site)	Minimal post war development (<10% of the site)
E - Level of proposed intrusive works in areas not subject to post war development <sup>1</sup>	Very Small (<5%)	Small (<10%)	Some (<45% and ≥10%)	Moderate (<80% and ≥45%)	Significant (>80%)

<sup>1</sup>Only if the level of post-war development is known and can be quantified in terms of site area and an approximation of depth should a mitigation factor be applied.

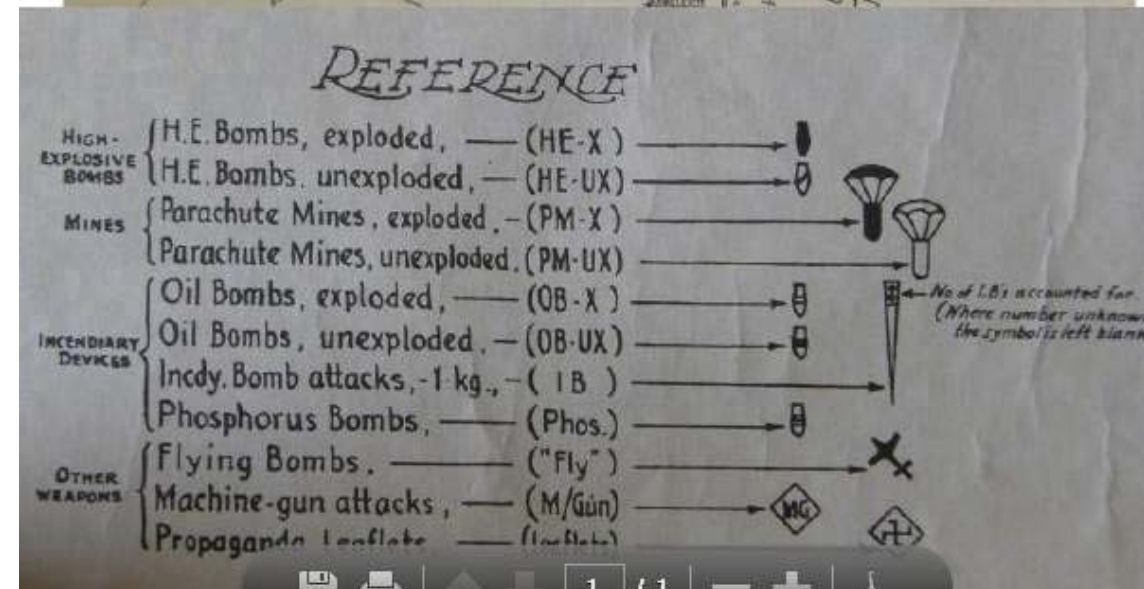
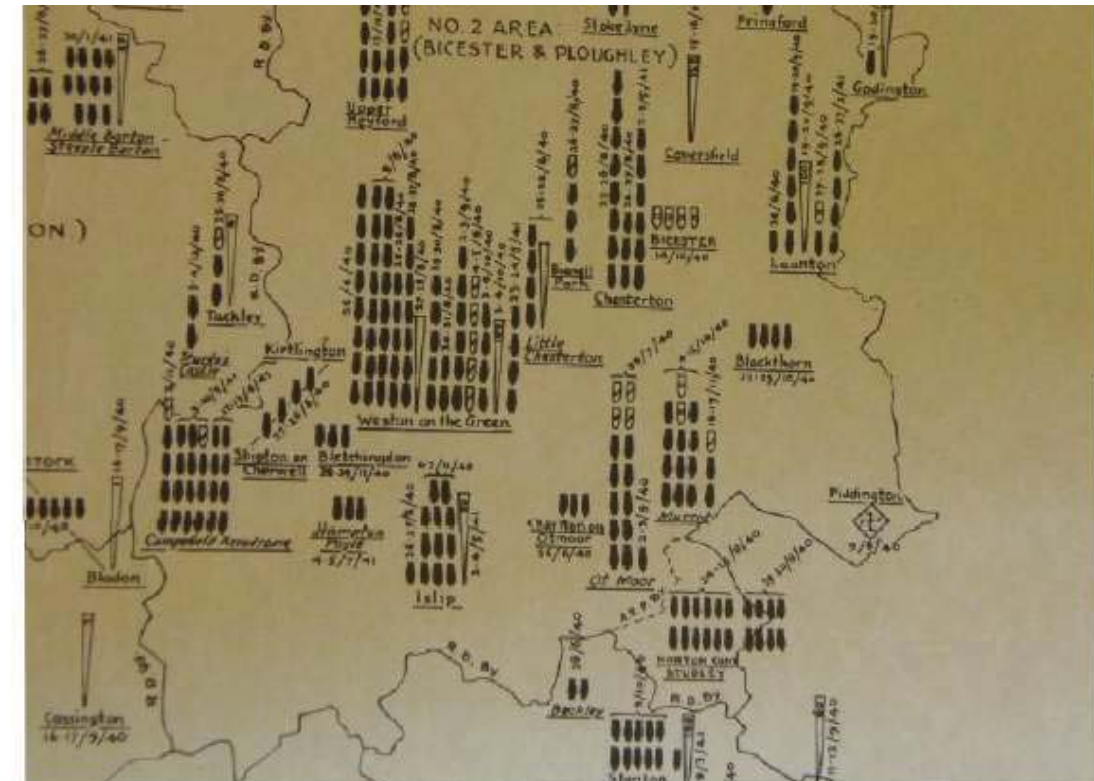
Table 8-3 Final score is based on the sum of rows A, B, C, D and E in Table 8-1 and Table 8-2

Final Hazard Score	Risk of encountering an Aerial dropped UXO	Implication
-9 - 9	Low Risk	No further UXO risk assessment likely to be required
10 - 17	Moderate Risk	Detailed UXO Risk Assessment required
17 - 20	High Risk	Detailed UXO Risk Assessment required.



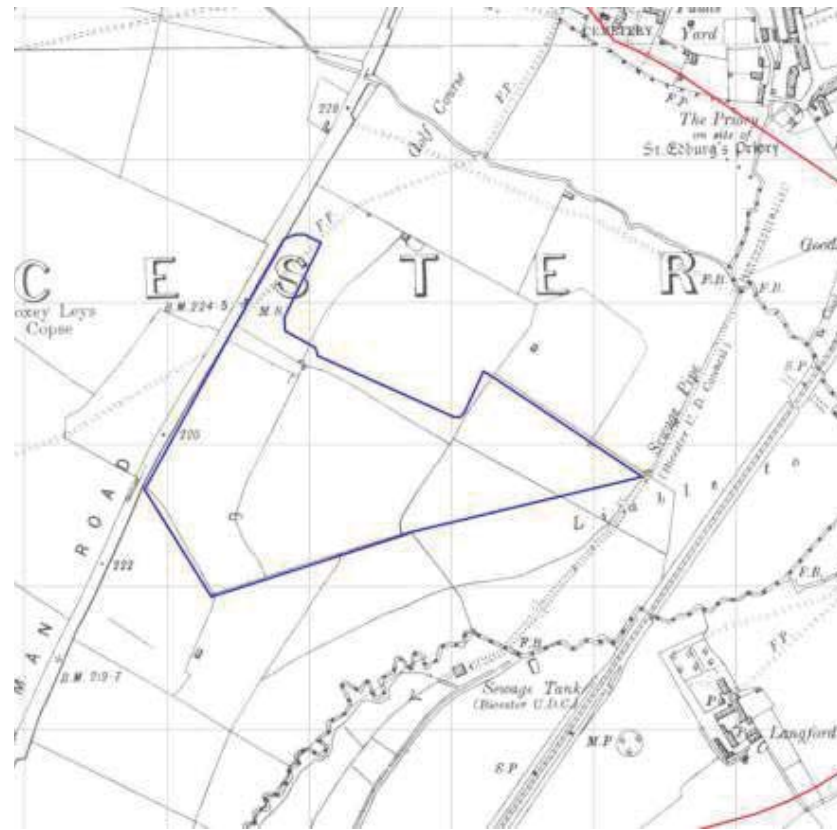
This risk assessment methodology is intended as a generic tool. A small number of sites with unusual site specific conditions may require additional consideration of the hazard scoring.

Attachment 1. Local bombing record

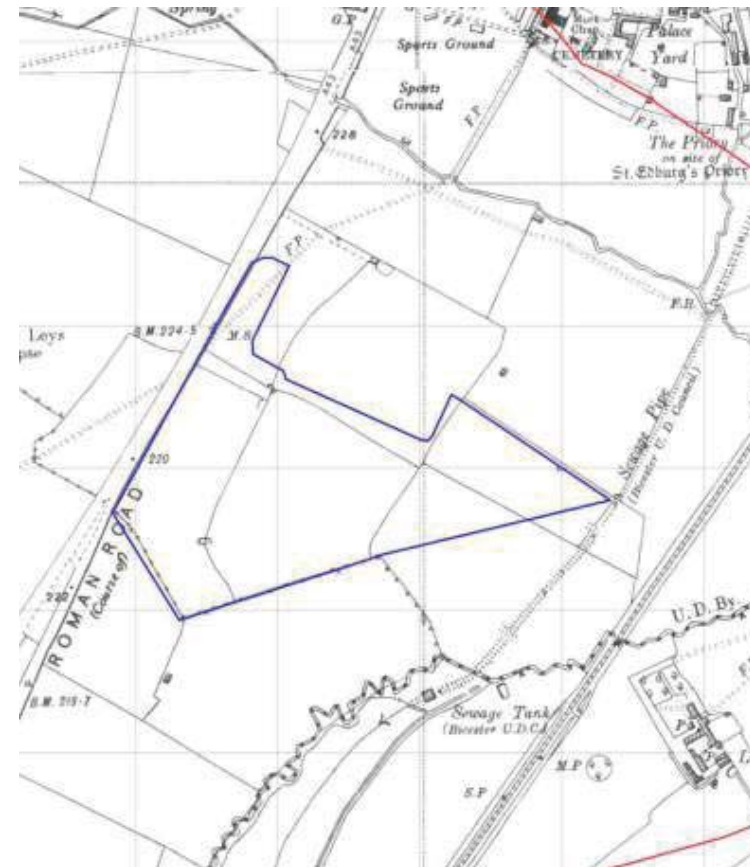




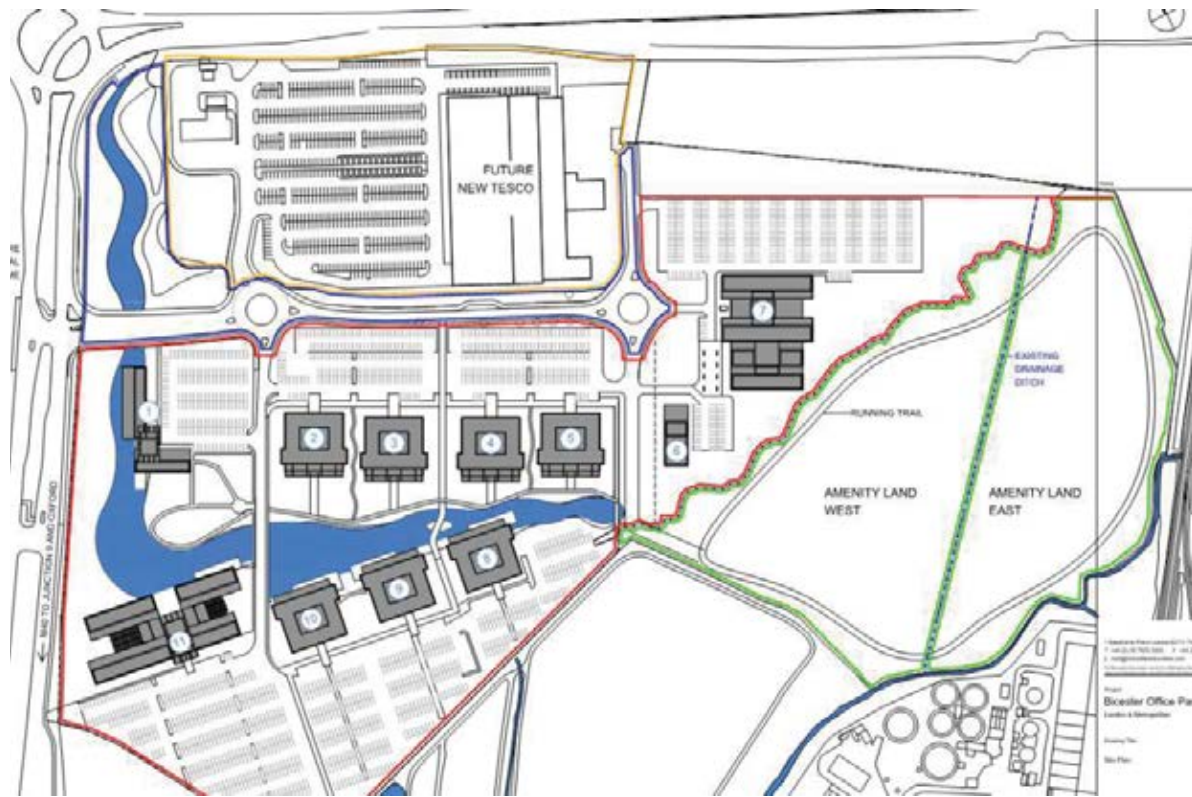
Attachment 2. Pre-WWII Historical Map (1919)



Attachment 3. Post-WWII Historical Map (1950)



Attachment 4. Proposed Development Plan



## Appendix D – GroundSure



Buro Happold  
17 BURO HAPPOLD ENGINEERS LTD,  
NEWMAN STREET,  
LONDON, W1T 1PD

Groundsure Reference: GS-3722220  
Your Reference: 036269  
Report Date: 13 Mar 2017  
Report Delivery Method: Email - pdf

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Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviro Insight** as requested.

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# Groundsure Enviro Insight

Address: OXFORD ROAD, BICESTER, OX26 1BT  
Date: 13 Mar 2017  
Reference: GS-3722220  
Client: Buro Happold



Aerial Photograph Capture date: 06-Sep-2015  
Grid Reference: 457807,221589  
Site Size: 14.50ha

Report Reference: GS-3722220  
Client Reference: 036269

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# Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	2	2	23	54
1.2 Additional Information – Historical Tank Database	0	0	28	41
1.3 Additional Information – Historical Energy Features Database	0	0	4	3
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Potentially Infilled Land	0	1	21	18

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	4	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	2	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	11	4
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	4	2	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
<b>3.1 Landfill Sites</b>						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	1	0
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
<b>3.2 Landfill and Other Waste Sites Findings</b>						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	2	0	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	1	8	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	2	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m					
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes					
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	1	0	3	5
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	1
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	1	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	0	1	Not searched	Not searched

Section 6: Hydrogeology and Hydrology	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site?	No	No	No	Yes	Yes	No
6.10 Detailed River Network entries within 500m of the site	1	2	11	23	Not searched	Not searched
6.11 Surface water features within 250m of the study site	Yes	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding	
7.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	Yes
7.2 Are there any Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site?	Yes
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Medium
7.4 Are there any Flood Defences within 250m of the study site?	No
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential at Surface
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	High

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	1
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	1
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	2

## Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

### 1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

### 2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

### 3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

### 4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

### 5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

### 6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licenses, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

### 7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

### 8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

### 9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

### 10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

### 11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

### Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

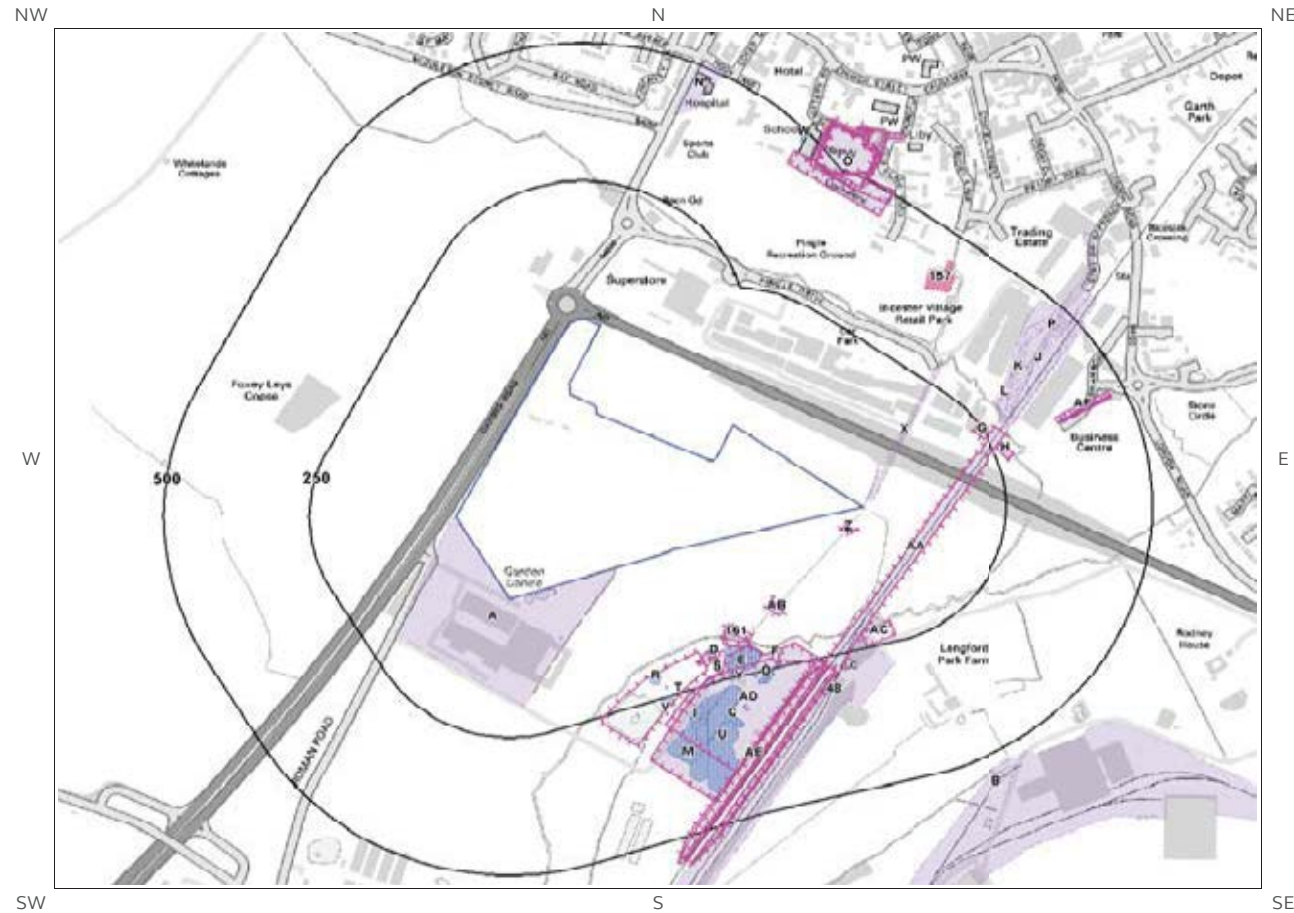
All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	1	0	1	0	0	2
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards	
9.1 What is the maximum risk of natural ground subsidence?	Moderate
9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Moderate
9.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Low
9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Moderate
9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
9.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining	
10.1 Are there any coal mining areas within 75m of the study site?	No
10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?	No
10.3 Are there any brine affected areas within 75m of the study site?	No

# 1. Historical Land Use



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# 1. Historical Industrial Sites

## 1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 81

ID	Distance [m]	Direction	Use	Date
1A	0	On Site	Nursery	1995
2A	0	On Site	Nursery	1985
3X	15	NE	Sewage Pipe	1882
4Z	22	S	Unspecified Heap	1966
5AA	106	SE	Cuttings	1880
6AB	130	S	Unspecified Heap	1966
7B	172	S	Railway Sidings	1970
8B	172	S	Railway Sidings	1995
9B	172	S	Railway Sidings	1966
10B	172	S	Railway Sidings	1985
11D	192	S	Sewage Tank	1882
12C	199	S	Sewage Works	1985
13C	199	S	Sewage Works	1995
14D	202	S	Unspecified Heap	1966
15D	204	S	Sewage Tank	1880
16E	208	S	Unspecified Tanks	1995
17E	208	S	Unspecified Tanks	1985
18F	215	S	Sewage Tank	1950
19F	215	S	Sewage Tank	1919
20F	215	S	Sewage Tank	1898
21C	231	S	Sewage Farm	1970
22G	234	NE	Unspecified Heap	1919
23G	234	NE	Unspecified Heap	1898
24G	234	NE	Unspecified Heap	1950
25F	236	S	Unspecified Tank	1995
26F	236	S	Unspecified Tank	1985
27Q	247	S	Unspecified Tanks	1970
28H	257	NE	Unspecified Heap	1898
29H	257	NE	Unspecified Heap	1950
30H	257	NE	Unspecified Heap	1919
31C	263	S	Unspecified Tanks	1995
32C	263	S	Unspecified Tanks	1970
33C	263	S	Unspecified Tanks	1985
34I	289	S	Unspecified Tanks	1995



35I	289	S	Unspecified Tanks	1985
36J	291	NE	Railway Sidings	1966
37J	292	NE	Coal Depot	1970
38J	292	NE	Railway Sidings	1970
39J	292	NE	Railway Sidings	1985
40J	296	NE	Coal Depot	1880
41J	298	NE	Railway Sidings	1950
42K	298	NE	Coal Depot	1919
43J	298	NE	Railway Sidings	1919
44J	298	NE	Railway Sidings	1898
45K	298	NE	Coal Depot	1950
46J	299	NE	Railway Sidings	1880
47P	305	NE	Coal Depot	1882
48	307	S	Railway Building	1966
49L	312	NE	Railway Building	1898
50C	316	S	Unspecified Tanks	1970
51L	317	NE	Coal Depot	1966
52J	318	NE	Railway Sidings	1882
53C	319	S	Unspecified Tanks	1995
54C	319	S	Unspecified Tanks	1985
55M	347	S	Unspecified Tanks	1995
56M	347	S	Unspecified Tanks	1985
57K	350	NE	Railway Building	1995
58K	350	NE	Railway Building	1985
59K	375	NE	Coal Depot	1985
60K	377	NE	Coal Depot	1995
61N	401	NE	Hospital	1995
62N	401	NE	Hospital	1970
63O	436	NE	Cemetery	1970
64O	436	NE	Cemetery	1995
65O	464	NE	Cemetery	1880
66P	465	NE	Goods Shed	1880
67N	465	NE	Hospital	1985
68P	470	NE	Goods Shed	1950
69P	470	NE	Goods Shed	1919
70P	470	NE	Goods Shed	1898
71P	471	NE	Goods Shed	1882
72O	471	NE	Cemetery	1938
73O	472	NE	Cemetery	1882
74O	472	NE	Cemetery	1898
75O	472	NE	Cemetery	1950
76P	473	NE	Goods Shed	1966
77O	473	NE	Cemetery	1966
78O	473	NE	Cemetery	1985
79P	473	NE	Railway Building	1898
80P	473	NE	Railway Building	1919

81P	473	NE	Railway Building	1950
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## 1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary:

69

ID	Distance (m)	Direction	Use	Date
82E	191	S	Tanks	1996
83E	191	S	Tanks	1995
84E	191	S	Tanks	1996
85E	191	S	Tanks	1995
86Q	196	S	Tanks	1992
87D	200	S	Sewage Tank	1881
88D	200	S	Urban District Council Sewage Tank	1922
89D	200	S	Sewage Tank	1900
90R	202	S	Unspecified Tank	1995
91R	202	S	Unspecified Tank	1995
92E	209	S	Tanks	1986
93D	219	S	Unspecified Tank	1996
94D	219	S	Unspecified Tank	1996
95S	228	S	Unspecified Tank	1996
96S	228	S	Unspecified Tank	1996
97R	231	S	Unspecified Tank	1995
98R	231	S	Unspecified Tank	1995
99Q	236	S	Unspecified Tank	1996
100Q	236	S	Unspecified Tank	1995
101Q	236	S	Unspecified Tank	1996
102Q	236	S	Unspecified Tank	1995
103Q	237	S	Unspecified Tank	1992
104Q	237	S	Unspecified Tank	1986
105T	243	S	Unspecified Tank	1995
106T	243	S	Unspecified Tank	1995
107T	248	S	Unspecified Tank	1995
108T	248	S	Unspecified Tank	1995
109Q	249	S	Tanks	1966
110Q	251	S	Tanks	1996
111Q	251	S	Tanks	1995
112Q	251	S	Tanks	1995
113Q	251	S	Tanks	1996
114Q	251	S	Tanks	1992

115Q	251	S	Tanks	1986
116S	254	S	Unspecified Tank	1996
117S	254	S	Unspecified Tank	1996
118S	254	S	Unspecified Tank	1995
119S	254	S	Unspecified Tank	1995
120Q	257	S	Unspecified Tank	1995
121Q	257	S	Unspecified Tank	1996
122Q	257	S	Unspecified Tank	1996
123Q	257	S	Unspecified Tank	1995
124C	263	S	Tanks	1966
125U	263	S	Tanks	1996
126U	263	S	Tanks	1995
127U	263	S	Tanks	1996
128U	263	S	Tanks	1995
129C	265	S	Tanks	1992
130M	270	S	Tanks	1995
131M	270	S	Tanks	1995
132V	272	S	Unspecified Tank	1995
133V	272	S	Unspecified Tank	1995
134I	279	S	Tanks	1983
135V	280	S	Unspecified Tank	1995
136V	280	S	Unspecified Tank	1995
137I	283	S	Tanks	1992
138I	283	S	Tanks	1993
139AD	292	S	Unspecified Tank	1996
140C	301	S	Tanks	1996
141M	305	S	Tanks	1992
142M	305	S	Tanks	1993
143C	306	S	Unspecified Tank	1996
144C	317	S	Tanks	1966
145C	318	S	Tanks	1992
146C	318	S	Tanks	1986
147W	479	NE	Tanks	1995
148W	481	NE	Unspecified Tank	1995
149W	490	NE	Unspecified Tank	1995
150W	500	NE	Unspecified Tank	1995

### 1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary: 7

ID	Distance (m)	Direction	Use	Date
151X	157	NE	Electricity Substation	1995
152X	157	NE	Electricity Substation	1996
153X	157	NE	Electricity Substation	1996
154X	157	NE	Electricity Substation	1995
155Y	251	S	Electricity Substation	1986
156Y	251	S	Electricity Substation	1992
157	388	NE	Electricity Substation	1996

### 1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

### 1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 0

Database searched and no data found.

### 1.6 Potentially Infilled Land

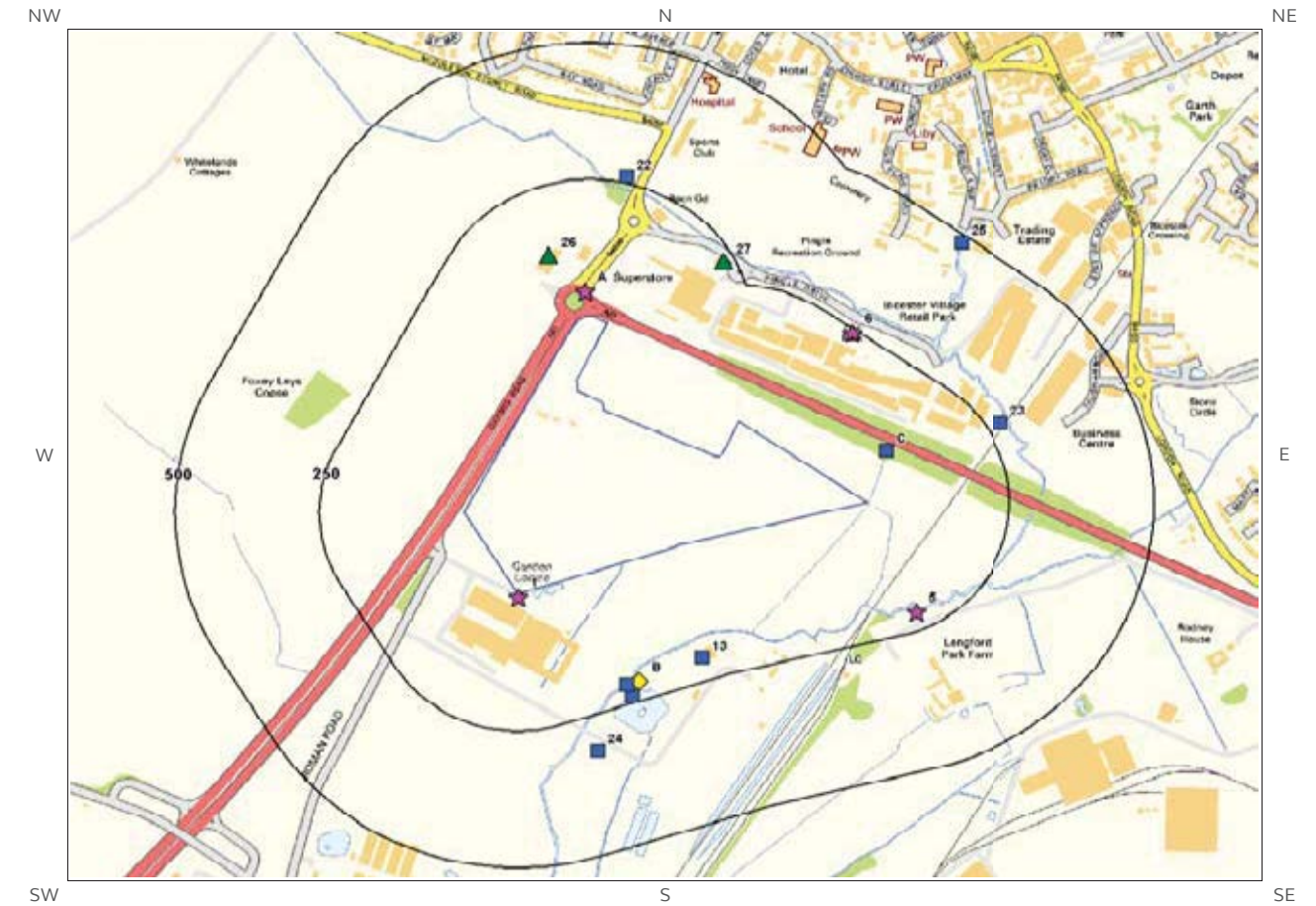
Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 40

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

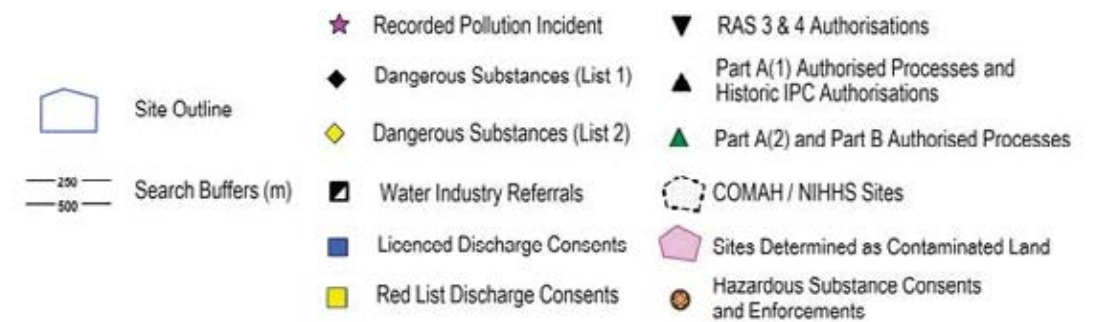
ID	Distance(m)	Direction	Use	Date
158Z	22	S	Unspecified Heap	1966
159AA	106	SE	Cuttings	1880
160AB	130	S	Unspecified Heap	1966
161	152	S	Pond	1882
162D	163	S	Pond	1880
163V	188	S	Ponds	1995
164V	188	S	Ponds	1985
165D	192	S	Sewage Tank	1882
166C	199	S	Sewage Works	1995
167C	199	S	Sewage Works	1985

168S	202	S	Unspecified Heap	1966
169S	204	S	Sewage Tank	1880
170AC	210	S	Pond	1970
171AC	210	S	Pond	1985
172AC	210	S	Pond	1995
173F	215	S	Sewage Tank	1898
174F	215	S	Sewage Tank	1950
175F	215	S	Sewage Tank	1919
176AD	231	S	Sewage Farm	1970
177G	234	NE	Unspecified Heap	1898
178G	234	NE	Unspecified Heap	1950
179G	234	NE	Unspecified Heap	1919
180AE	254	S	Water Body	1882
181H	257	NE	Unspecified Heap	1919
182H	257	NE	Unspecified Heap	1898
183H	257	NE	Unspecified Heap	1950
184AE	264	S	Water Body	1880
185AE	267	S	Water Body	1882
186AE	280	S	Pond	1880
187AF	370	NE	Pond	1970
188AF	378	NE	Pond	1880
189O	436	NE	Cemetery	1970
190O	436	NE	Cemetery	1995
191O	464	NE	Cemetery	1880
192O	471	NE	Cemetery	1938
193O	472	NE	Cemetery	1882
194O	472	NE	Cemetery	1898
195O	472	NE	Cemetery	1950
196O	473	NE	Cemetery	1985
197O	473	NE	Cemetery	1966

## 2. Environmental Permits, Incidents and Registers Map



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## 2. Environmental Permits, Incidents and Registers

### 2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

#### 2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

#### 2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

#### 2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

#### 2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

### 2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

4

The following List 2 Dangerous Substance Inventory Site records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
7B	215	S	457871 221227	Name: Haul Waste Disposal Ltd Status: Active Receiving Water: Langford Brook	Authorised Substances: Chromium, Copper, Lead, Nickel, Zinc
8B	215	S	457871 221227	Name: Powdertech (bicester) Ltd Status: Active Receiving Water: -	Authorised Substances: Zinc
9B	215	S	457871 221227	Name: Hardide Ltd Status: Active Receiving Water: Langford Brook	Authorised Substances: Chromium, Copper, Lead, Nickel, Silver, Zinc
10B	215	S	457871 221227	Name: Bicester Stw Status: Active Receiving Water: Langford Brook	Authorised Substances: Iron

### 2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

2

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
26	125	NW	457715 222003	Address: Bicester Service Area (ROC UK Ltd), Oxford Road, Bicester, Oxfordshire, OX6 8BT Process: Gasification, Liquefaction & Refining Activities Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
27	228	NE	458017 221991	Address: Tesco's Bicester, Pingle Drive, Bicester, Oxfordshire, OX16 7LX Process: Service Stations Unloading Petrol Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

### 2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

15

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
11C	98	NE	458300 221650	Address: PHASE I BICESTER RETAIL PARK, A421, PHASE I BICESTER RETAIL PARK, A4, 21 OXFORD ROAD, BICESTER, OXFORD, SHIRE, - Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: CNTW.0555 Permit Version: 1 Receiving Water: TRIB OF THE LANGFORD BROOK Status: TRANSFERRED FROM WATER ACT 1989 Issue date: 14/06/1990 Effective Date: 14-Jun-1990 Revocation Date: 11/05/1997
12C	98	NE	458300 221650	Address: PHASE I BICESTER RETAIL PARK, A421, PHASE I BICESTER RETAIL PARK, A4, 21 OXFORD ROAD, BICESTER, OXFORD, SHIRE, - Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: CNTW.0555 Permit Version: 2 Receiving Water: TRIB OF THE LANGFORD BROOK Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 14/06/1990 Effective Date: 12-May-1997 Revocation Date: -
13	207	S	457980 221270	Address: BICESTER SEWAGE TREATMENT WORKS, OXFORD ROAD, BICESTER, OXFORDSHIRE, - Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: CAWM.0807 Permit Version: 1 Receiving Water: THE LANGFORD BROOK Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/11/2004 Effective Date: 01-Jun-2004 Revocation Date: -
14B	215	S	457850 221220	Address: BICESTER STW, BICESTER, OXON, BICESTER STW, BICESTER, OXON, -, -, - Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: CNTD.0023 Permit Version: 6 Receiving Water: LANGFORD BROOK Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 29/06/2007 Effective Date: 29-Jun-2007 Revocation Date: 31/03/2009
15B	215	S	457850 221220	Address: BICESTER STW, BICESTER, OXON, BICESTER STW, BICESTER, OXON, -, -, - Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: CNTD.0023 Permit Version: 5 Receiving Water: LANGFORD BROOK Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 30/03/2006 Effective Date: 30-Mar-2006 Revocation Date: 28/06/2007
16B	215	S	457850 221220	Address: BICESTER STW, BICESTER, OXON, BICESTER STW, BICESTER, OXON, -, -, - Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: CNTD.0023 Permit Version: 4 Receiving Water: LANGFORD BROOK Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 31/03/2005 Effective Date: 01-Apr-2005 Revocation Date: 29/03/2006
17B	215	S	457850 221220	Address: BICESTER STW, BICESTER, OXON, BICESTER STW, BICESTER, OXON, -, -, - Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: CNTD.0023 Permit Version: 7 Receiving Water: LANGFORD BROOK Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 28/01/2009 Effective Date: 01-Apr-2009 Revocation Date: 31/03/2010

ID	Distance (m)	Direction	NGR	Details
18B	215	S	457850 221220	Address: BICESTER STW, BICESTER, OXON, BICESTER STW, BICESTER, OXON, -, -, - Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: CNTD.0023 Permit Version: 8 Receiving Water: LANGFORD BROOK Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 01/04/2010 Effective Date: 01-Apr-2010 Revocation Date: -
19B	237	S	457860 221200	Address: BICESTER STW, BICESTER, OXON, BICESTER STW, BICESTER, OXON, -, -, - Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: CNTD.0023 Permit Version: 1 Receiving Water: LANGFORD BROOK Status: BY DIRECT. OF SEC OF STATE, (WATER ACT 1989 SCHED 26 & 25(4)(5)) Issue date: 02/11/1989 Effective Date: 02-Nov-1989 Revocation Date: 31/03/1990
20B	237	S	457860 221200	Address: BICESTER STW, BICESTER, OXON, BICESTER STW, BICESTER, OXON, -, -, - Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: CNTD.0023 Permit Version: 3 Receiving Water: LANGFORD BROOK Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 21/12/2000 Effective Date: 21-Dec-2000 Revocation Date: 31/03/2005
21B	237	S	457860 221200	Address: BICESTER STW, BICESTER, OXON, BICESTER STW, BICESTER, OXON, -, -, - Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: CNTD.0023 Permit Version: 2 Receiving Water: LANGFORD BROOK Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 02/11/1989 Effective Date: 01-Apr-1990 Revocation Date: 20/12/2000
22	262	N	457850 222150	Address: THE SERVICE STATION, OXFORD ROAD, B, THE SERVICE STATION, OXFORD ROAD, BICESTER, OXFORDSHIRE, -, - Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: CNTM.1213 Permit Version: 1 Receiving Water: TRIBUTARY OF THE TOWN BROOK Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 13/12/1993 Effective Date: 13-Dec-1993 Revocation Date: 01/10/1996
23	275	NE	458500 221700	Address: TALISMAN BUSINESS CENTRE, LONDON RO, TALISMAN BUSINESS CENTRE, LONDON, ROAD, BICESTER, OXFORDSHIRE, -, - Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: CNTW.0314 Permit Version: 1 Receiving Water: TOWN BROOK Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 19/01/1990 Effective Date: 19-Jan-1990 Revocation Date: 01/10/1996
24	314	S	457800 221100	Address: BICESTER STW, BICESTER, OXON, BICESTER STW, BICESTER, OXON, -, -, - Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: CTRC.1293 Permit Version: 1 Receiving Water: LANGFORD BROOK Status: REVOKED - UNSPECIFIED Issue date: 09/10/1972 Effective Date: 31-Jan-1985 Revocation Date: 01/11/1989
25	486	NE	458430 222030	Address: LAND OFF PRIORY ROAD, BICESTER, OXON, LAND OFF PRIORY ROAD, BICESTER, OXON, -, -, - Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: CTWC.0200 Permit Version: 1 Receiving Water: TRIBUTARY OF LANGFORD BROOK Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 22/07/1985 Effective Date: 22-Jul-1985 Revocation Date: 09/11/2009

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

**2.2 Dangerous or Hazardous Sites**

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

**2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents**

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

6

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
1	5	S	457662 221381	Incident Date: 09-Dec-2002 Incident Identification: 125299 Pollutant: Other Pollutant Pollutant Description: Microbiological Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2A	45	N	457778 221940	Incident Date: 01-Oct-2001 Incident Identification: 34098 Pollutant: Oils and Fuel Pollutant Description: Diesel Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
3A	45	N	457778 221940	Incident Date: 01-Oct-2001 Incident Identification: 34098 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Food and Drink Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

ID	Distance (m)	Direction	NGR	Details
4A	45	N	457778 221940	Incident Date: 01-Oct-2001 Incident Identification: 34098 Pollutant: General Biodegradable Materials and Wastes:Oils and Fuel Pollutant Description: Food and Drink:Diesel Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
5	217	SE	458351 221354	Incident Date: 17-Apr-2002 Incident Identification: 72341 Pollutant: Sewage Materials Pollutant Description: Other Sewage Material Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
6	243	NE	458239 221865	Incident Date: 13-May-2003 Incident Identification: 157913 Pollutant: Oils and Fuel Pollutant Description: Petrol Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

Database searched and no data found.

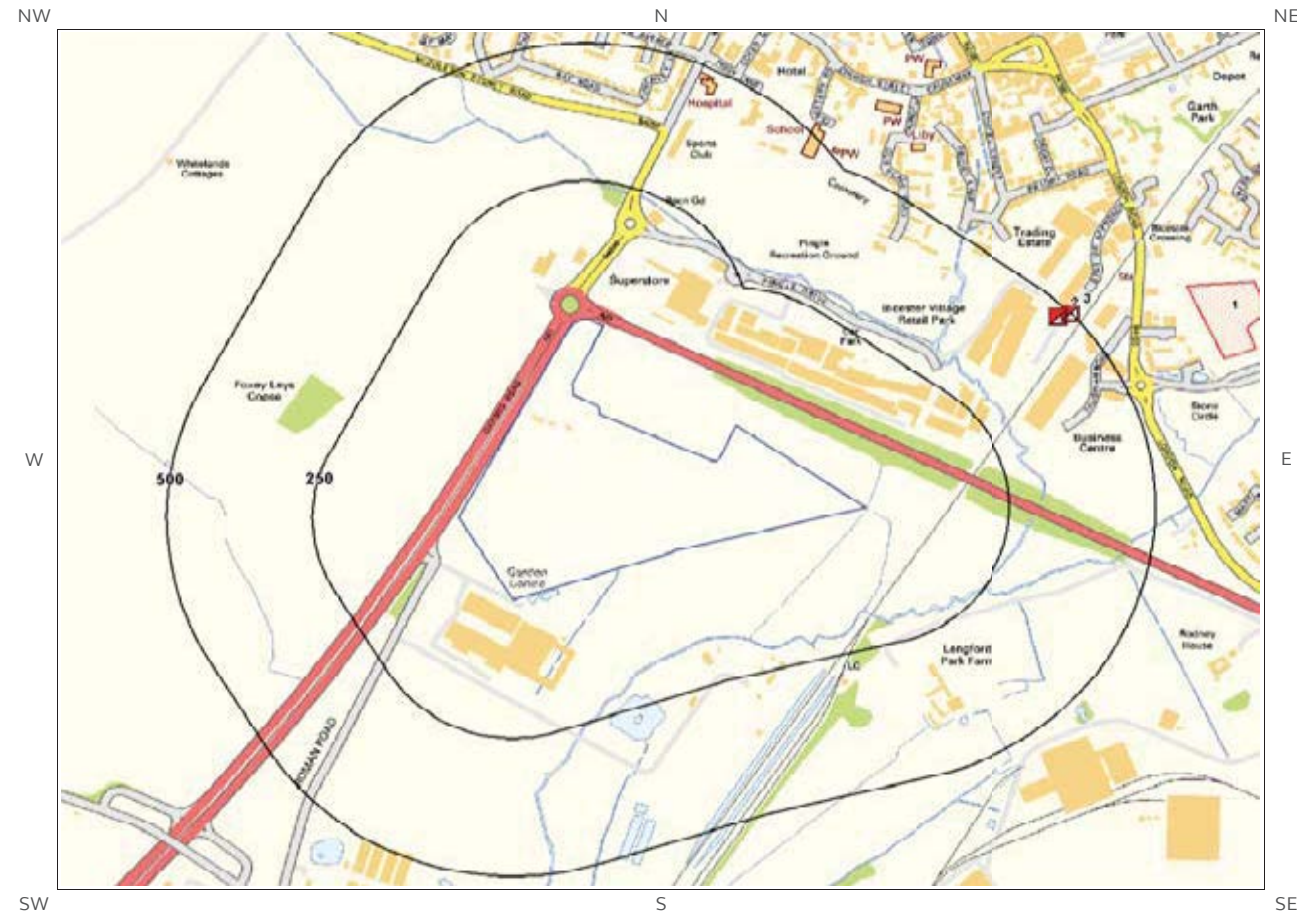
**2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990**

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

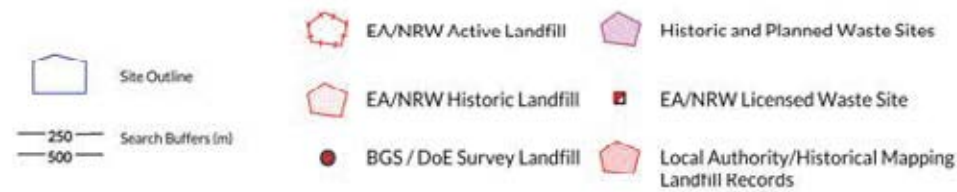
0

Database searched and no data found.

# 3. Landfill and Other Waste Sites Map



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# 3. Landfill and Other Waste Sites

## 3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

1

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
1	673	NE	458800 221900	<p>Site Address: London Road, Bicester, Oxfordshire Waste Licence: - Site Reference: 13.6.5821, TP0100 Waste Type: Inert, Industrial, Commercial, Household Environmental Permitting Regulations (Waste) Reference: -</p> <p>Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Ploughley Rural District Council Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1969</p>

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

### 3.2 Other Waste Sites

#### 3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

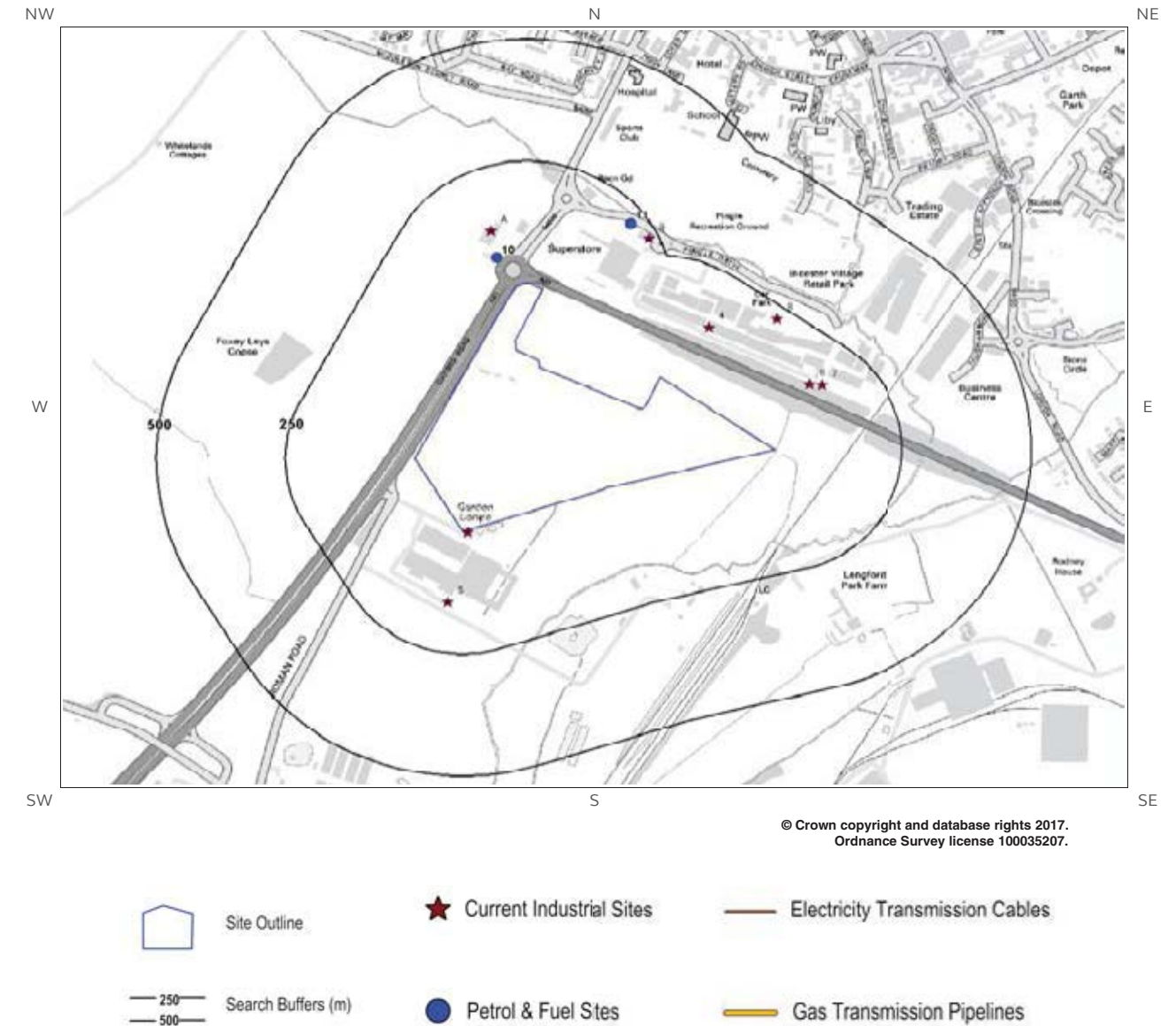
Database searched and no data found.

#### 3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
2	480	NE	458600 221900	<p>Site Address: McGregor Railway Services Ltd, Station Yard Road, London Road, Bicester, Oxon, OX6 7BZ</p> <p>Type: Metal Recycling Site (mixed MRS's)</p> <p>Size: &gt;= 25000 tonnes &lt; 75000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: MCG001</p> <p>EPR reference: -</p> <p>Operator: McGregor Railway Services Ltd</p> <p>Waste Management licence No: 86100</p> <p>Annual Tonnage: 74999.0</p> <p>Issue Date: 27/10/1994</p> <p>Effective Date: -</p> <p>Modified: 27/07/2001</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Modified</p> <p>Site Name: S. M. McGregor</p> <p>Correspondence Address: McGregor Railway Services Ltd, The White Cottage, Lower Road, Blackthorn, Bicester, Oxon, OX6 0TG</p>
3	500	NE	458622 221906	<p>Site Address: McGregor Railway Services Ltd, Station Yard, London Road, Bicester, Oxfordshire, OX26 6HU</p> <p>Type: Metal Recycling Site (mixed MRS's)</p> <p>Size: &lt; 25000 tonnes</p> <p>Environmental Permitting Regulations (Waste) Licence Number: MCG001</p> <p>EPR reference: EA/EPR/CP3599EP/S003</p> <p>Operator: McGregor Railway Services Ltd</p> <p>Waste Management licence No: 86100</p> <p>Annual Tonnage: 0.0</p> <p>Issue Date: 27/10/1994</p> <p>Effective Date: -</p> <p>Modified: 28/05/2008</p> <p>Surrendered Date: 18/11/2009</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Surrendered</p> <p>Site Name: S. M. McGregor</p> <p>Correspondence Address: -</p>

## 4. Current Land Use Map





## 4. Current Land Uses

### 4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 9

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	2	S	Electricity Sub Station	457671 221387	Electricity Sub Station, OX25	Electrical Features	Infrastructure and Facilities
2A	125	NW	Bicester Services	457715 222003	Bicester Services, Bicester Services, Oxford Road, Bicester, OX26 1BT	Petrol and Fuel Stations	Road and Rail
3A	125	NW	Esso	457715 222003	Esso, Bicester Services, Oxford Road, Bicester, OX26 1BT	Petrol and Fuel Stations	Road and Rail
4	138	NE	Pandora	458138 221806	Pandora, 51b, Pingle Drive, Bicester Village, Bicester, OX26 6WD	Jewellery, Gems, Clocks and Watches	Consumer Products
5	145	S	Electricity Sub Station	457633 221244	Electricity Sub Station, OX25	Electrical Features	Infrastructure and Facilities
6	150	NE	Electricity Sub Station	458333 221690	Electricity Sub Station, OX26	Electrical Features	Infrastructure and Facilities
7	161	NE	Electricity Sub Station	458357 221688	Electricity Sub Station, OX26	Electrical Features	Infrastructure and Facilities
8	226	NE	Electricity Sub Station	458270 221824	Electricity Sub Station, OX26	Electrical Features	Infrastructure and Facilities
9	231	NE	Tesco Bicester 2	458022 221988	Tesco Bicester 2, Pingle Drive, Bicester, OX26 6WA	Petrol and Fuel Stations	Road and Rail

### 4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 2

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
10	70	NW	457727 221947	Esso	Bicester Services, Oxford Road, Bicester, Oxfordshire, OX26 1BT	No	Open
11	216	NE	457986 222017	Tesco	Tesco Bicester 2, Pingle Drive, Bicester, Oxfordshire, OX26 6WA	No	Open

### 4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

### 4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

# 5. Geology

## 5.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

## 5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
ALV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]
RTD1	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]

## 5.3 Bedrock and Solid Geology

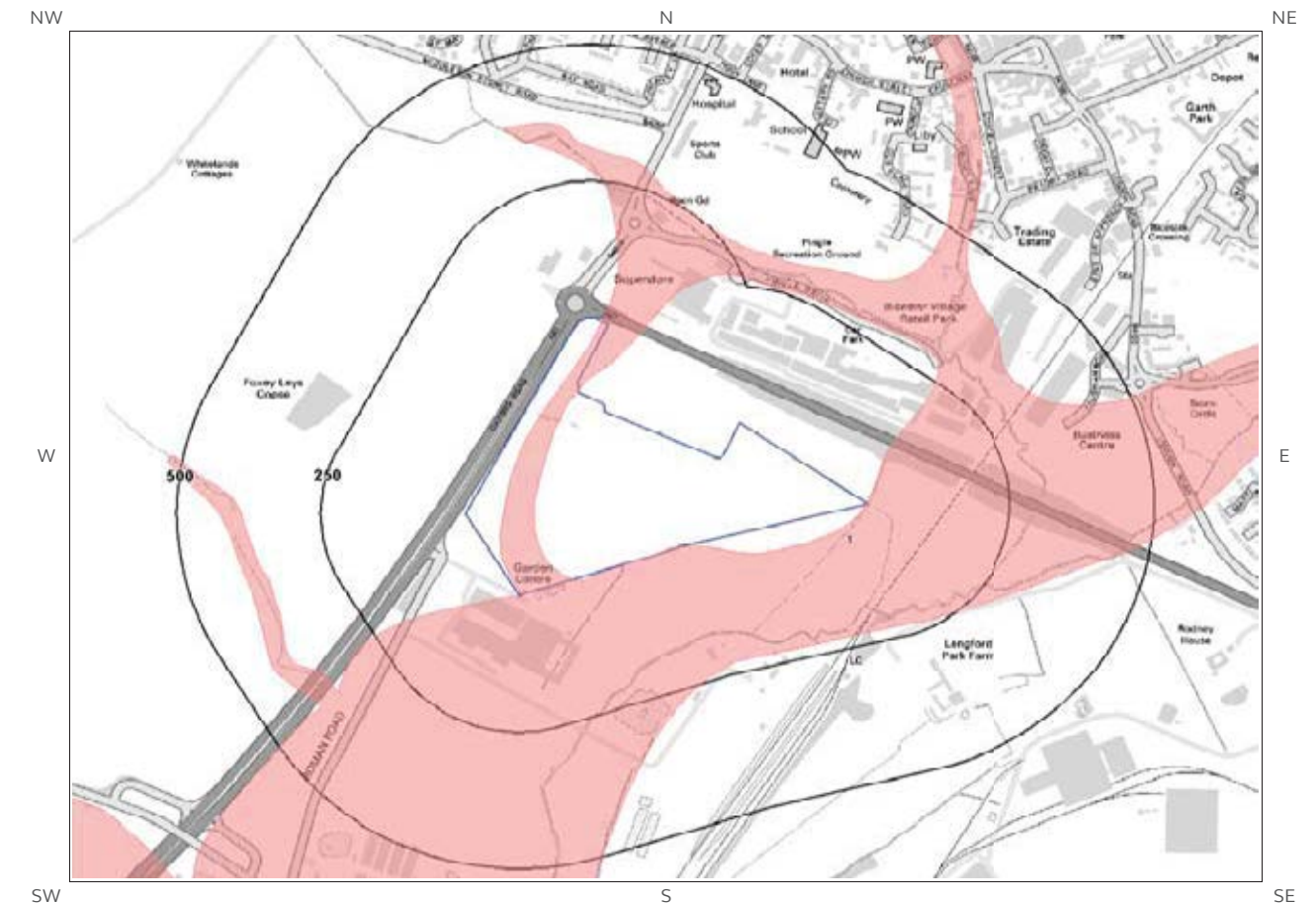
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
KLC-MDST	KELLAWAYS CLAY MEMBER	MUDSTONE
CB-LMST	CORNBRASH FORMATION	LIMESTONE

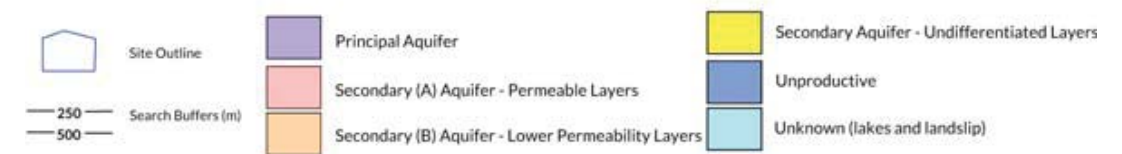
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

# 6 Hydrogeology and Hydrology

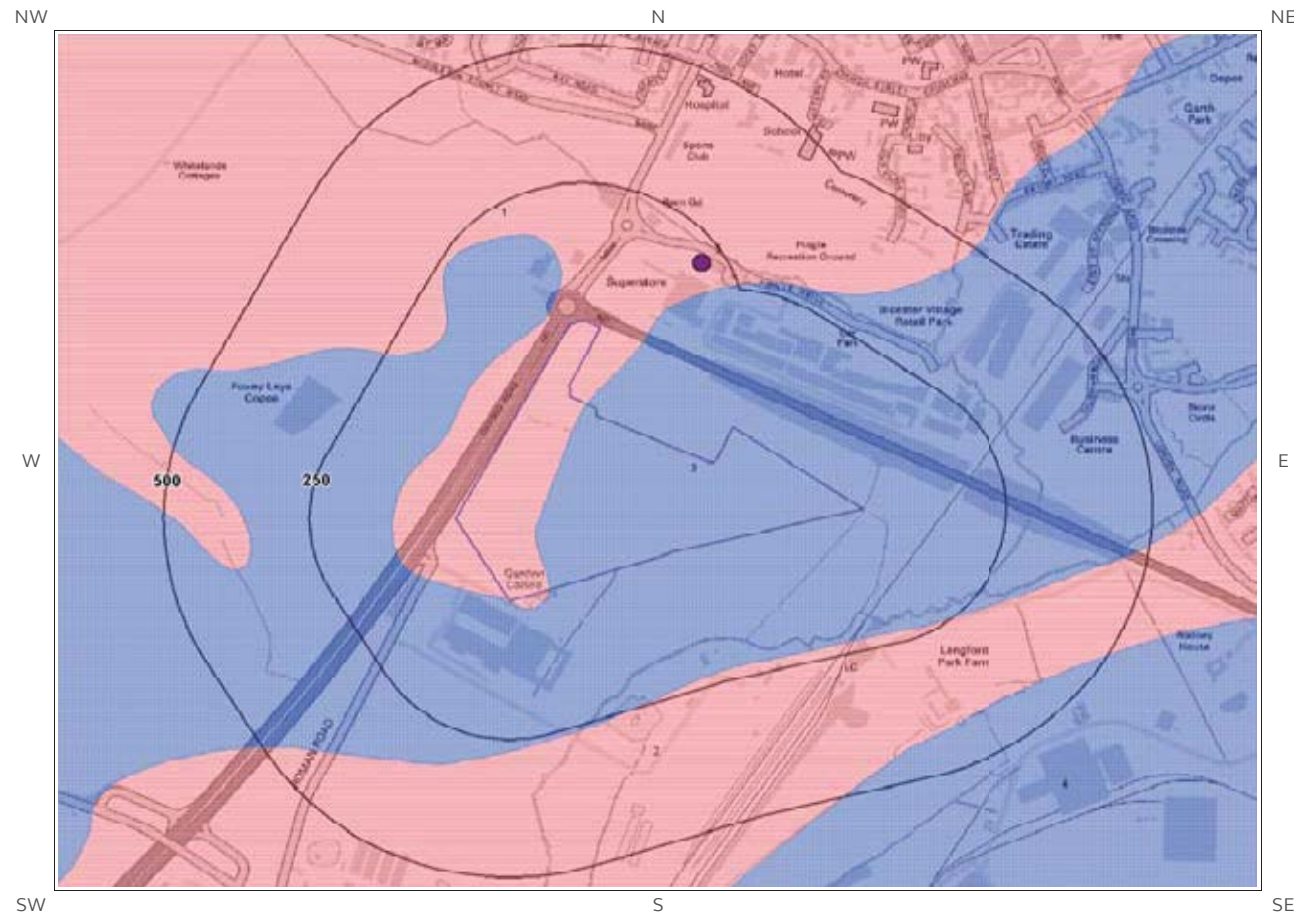
## 6a. Aquifer Within Superficial Geology



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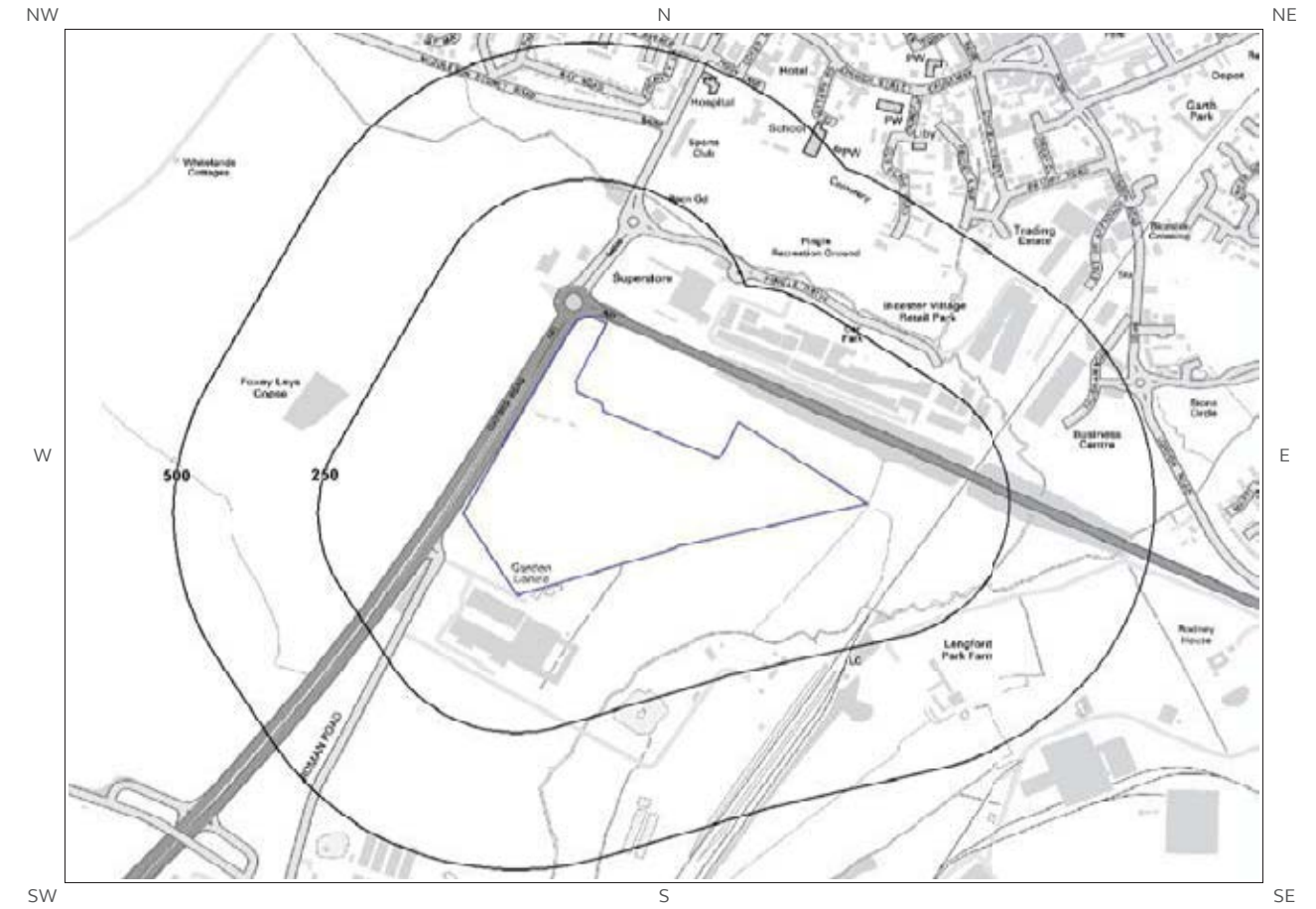
# 6b. Aquifer Within Bedrock Geology and Abstraction Licenses



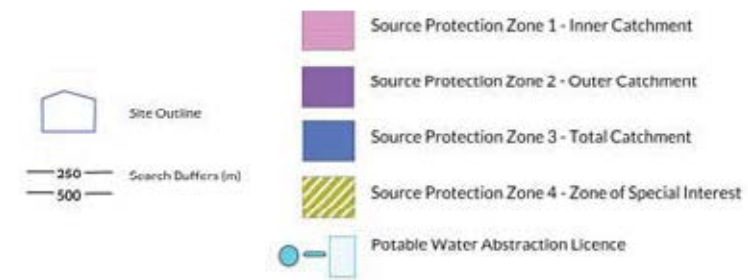
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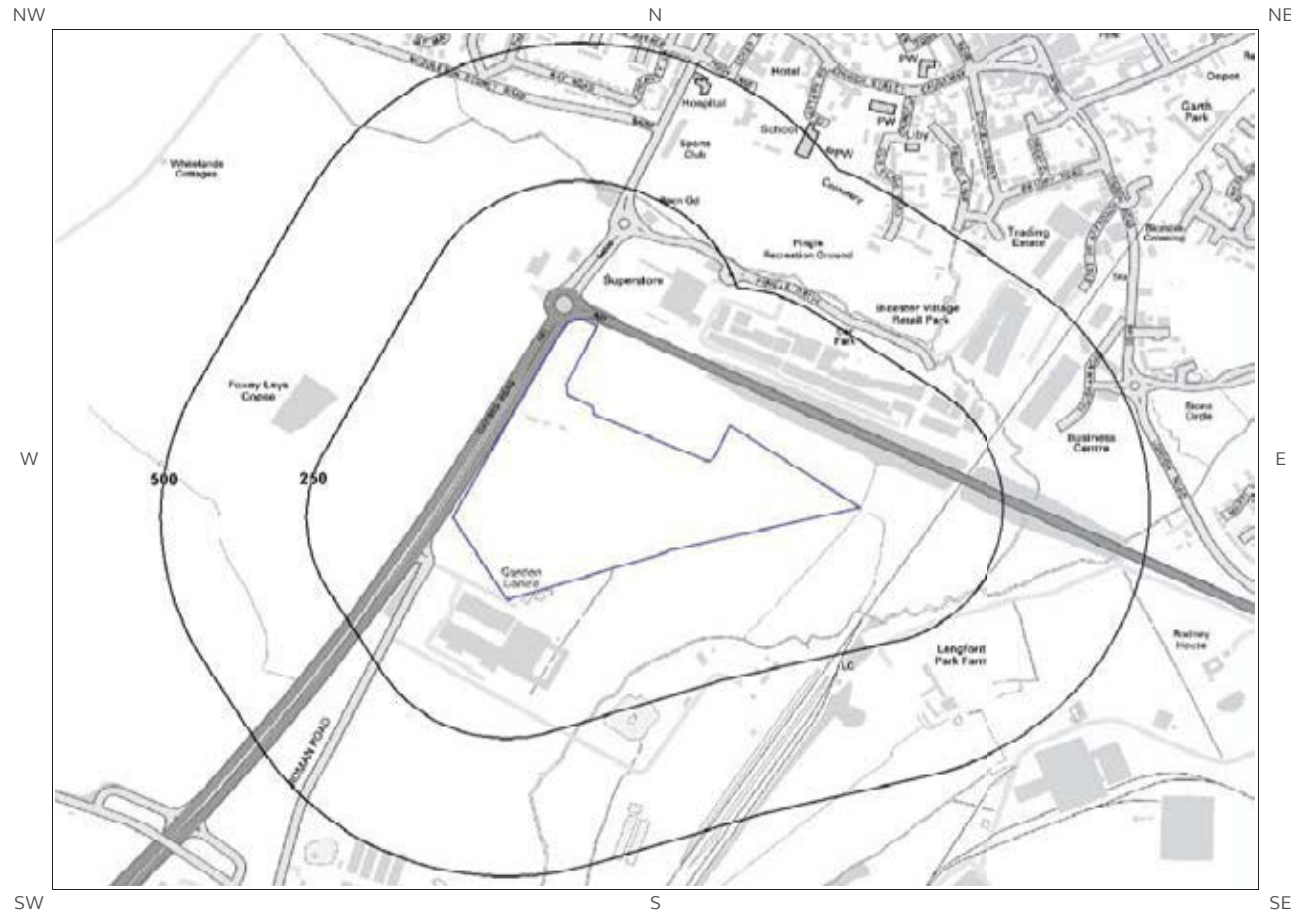
# 6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



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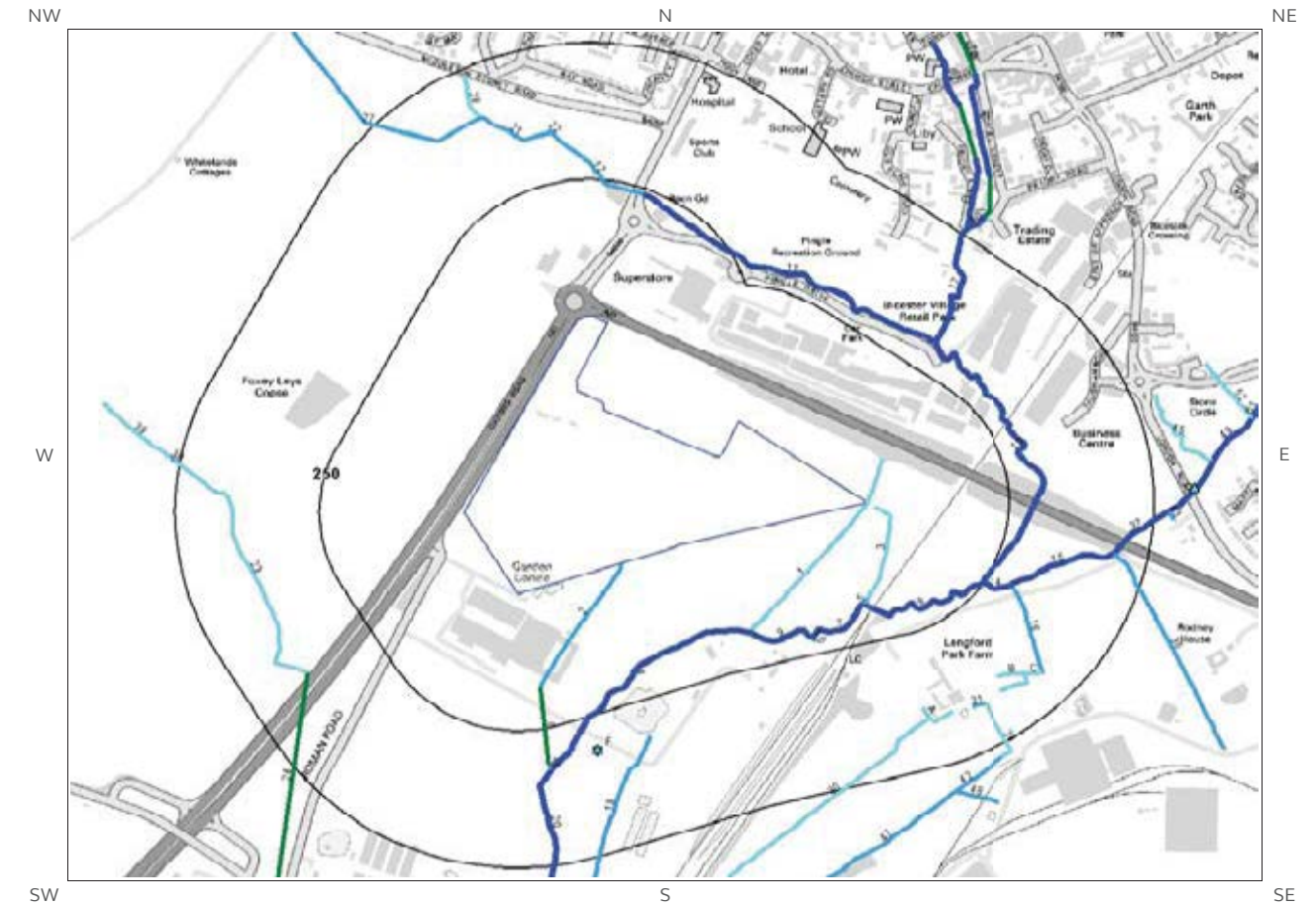
# 6d. Hydrogeology – Source Protection Zones within confined aquifer



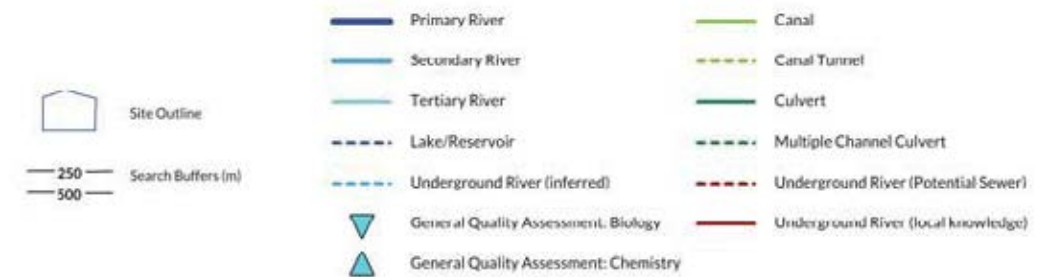
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# 6e. Hydrology – Detailed River Network and River Quality



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# 6. Hydrogeology and Hydrology

## 6.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

## 6.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
3	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	228	S	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	417	SE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

## 6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site? **Yes**

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
5	210	NE	457990 222000	Status: Historical Licence No: 28/39/14/0349 Details: Pollution Remediation Direct Source: Thames Groundwater Point: Pringle Drive Filling Station Bicester Oxon Data Type: Point Name: ARCADIS GERAGHTY & MILLER INT INC. Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WRW/A/1145 Original Start Date: 28/9/2004 Expiry Date: 31/3/2018 Issue No: 1 Version Start Date: 28/9/2004 Version End Date:
Not shown	642	SW	457400 220800	Status: Historical Licence No: 28/39/14/0295 Details: General Farming & Domestic Direct Source: Thames Groundwater Point: Wendlebury Lane, Bicester (a) Data Type: Point Name: FACCENDA CHICKEN LTD Annual Volume (m³): 16593 Max Daily Volume (m³): 68.2 Original Application No: WRA/5248 Original Start Date: 8/7/1983 Expiry Date: - Issue No: 100 Version Start Date: 8/7/1983 Version End Date:
Not shown	812	SW	457100 220800	Status: Historical Licence No: 28/39/14/0300 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Bicester Trailer Park, Oxford Road, Wendlebury Data Type: Point Name: M & L ROSSITER Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WRA/5517 Original Start Date: 19/3/1987 Expiry Date: - Issue No: 100 Version Start Date: 19/3/1987 Version End Date:
Not shown	912	SW	457200 220600	Status: Historical Licence No: 28/39/14/0329 Details: General Farming & Domestic Direct Source: Thames Groundwater Point: Promised Land Farm, Bicester (a) Data Type: Point Name: PROMISED LAND FARM Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WRA/6293 Original Start Date: 16/11/1994 Expiry Date: - Issue No: 100 Version Start Date: 16/11/1994 Version End Date:
Not shown	1032	NW	456700 222100	Status: Historical Licence No: 28/39/14/0123 Details: General Farming & Domestic Direct Source: Thames Groundwater Point: Whitelands, Bicester (a) Data Type: Point Name: A D WOODLEY LTD Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WRA/1071 Original Start Date: 9/1/1967 Expiry Date: - Issue No: 100 Version Start Date: 9/1/1967 Version End Date:
Not shown	1665	SW	456400 220300	Status: Historical Licence No: 28/39/14/0326 Details: General Farming & Domestic Direct Source: Thames Groundwater Point: Bowlers Copse, Wendlebury (a) Data Type: Point Name: PAIN Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WRA/6034 Original Start Date: 29/12/1993 Expiry Date: - Issue No: 100 Version Start Date: 29/12/1993 Version End Date:

ID	Distance (m)	Direction	NGR	Details
Not shown	1782	NE	458500 223530	Status: Historical Licence No: 28/39/14/0333 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Thames Groundwater Point: Buckingham Road, Bicester, Oxon Data Type: Point Name: GIBBS HOLDINGS LTD Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: WRA./6332 Original Start Date: 26/7/1996 Expiry Date: 31/12/2006 Issue No: 100 Version Start Date: 26/7/1996 Version End Date:
Not shown	1804	NE	458510 223550	Status: Historical Licence No: 28/39/14/0034 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Thames Groundwater Point: Buckingham Road, Bicester, - Borehole 'a' Data Type: Point Name: SUNLIGHT SERVICE GROUP LTD Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: WRA./1978 Original Start Date: 13/6/1966 Expiry Date: - Issue No: 100 Version Start Date: 4/12/1996 Version End Date:
Not shown	1986	E	460200 221100	Status: Historical Licence No: 28/39/14/0035 Details: General Farming & Domestic Direct Source: Thames Groundwater Point: Little Wretchwick Farm, Bicester (a) Data Type: Point Name: MARLOW Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: WR.A/1307 Original Start Date: 13/6/1966 Expiry Date: - Issue No: 100 Version Start Date: 26/7/1966 Version End Date:

#### 6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site? Yes

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details
Not shown	1774	S	457560 219140	Status: Active Licence No: 28/39/14/0350 Details: Make-Up Or Top Up Water Direct Source: Thames Surface Water - Non Tidal Point: Langford Brook At Merton Grounds Farm, Merton Data Type: Line Name: Jennings Annual Volume (m <sup>3</sup> ): 16256 Max Daily Volume (m <sup>3</sup> ): 145.47 Application No: NPS/WR/020119 Original Start Date: 6/5/2005 Expiry Date: 31/3/2018 Issue No: 2 Version Start Date: 22/7/2015 Version End Date:

#### 6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site? Yes

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details
Not shown	812	SW	457100 220800	Status: Historical Licence No: 28/39/14/0300 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Bicester Trailer Park, Oxford Road, Wendlebury Data Type: Point Name: M & L ROSSITER Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: WRA./5517 Original Start Date: 19/3/1987 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:

#### 6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site? No

Database searched and no data found.

#### 6.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site? No

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

## 6.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site? Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
341	N	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.

## 6.9 River Quality

Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site? Yes

### 6.9.1 Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
83F	314	S	457800 221100	River Name: Langford Brook Reach: Bicester Stw - Ray End/Start of Stretch: Start of Stretch NGR	B	B	B	B	B
84F	314	S	457800 221100	River Name: Langford Brook Reach: Stratton Audley - Bicester Stw End/Start of Stretch: End of Stretch NGR	B	B	B	B	B

### 6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAH). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
85F	314	S	457800 221100	River Name: Langford Brook Reach: Bicester Stw - Ray End/Start of Stretch: Start of Stretch NGR	C	C	C	C	B
86F	314	S	457800 221100	River Name: Langford Brook Reach: Stratton Audley - Bicester Stw End/Start of Stretch: End of Stretch NGR	C	C	C	C	C
87G	571	E	458837 221580	River Name: Langford Brook Reach: Stratton Audley - Bicester Stw End/Start of Stretch: Sample Point NGR	C	C	C	C	C

## 6.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site? Yes

The following Detailed River Network records are represented on the Hydrology Map (6e):

ID	Distance (m)	Direction	Details
1	0	On Site	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
2	1	S	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
3	14	SE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
4	166	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
5	170	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
6	173	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined
7	179	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
8	179	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined

ID	Distance (m)	Direction	Details
9	187	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
10	217	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
11	228	NE	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
12	238	N	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
13	246	SE	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
14	248	SE	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
15	294	SE	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
16	294	SE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
17	310	NE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
18	316	S	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
19	316	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
20	323	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
21	340	N	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
22	342	N	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
23	376	W	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
24	384	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined
25A	387	S	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
26B	392	SE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
27	404	NW	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined

ID	Distance (m)	Direction	Details
28	405	NW	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
29A	407	S	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
30	407	S	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
31	415	SE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
32B	417	SE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
33C	417	SE	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
34	420	SE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
35C	437	SE	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
36	440	E	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
37	440	E	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined

## 6.11 Surface Water Features

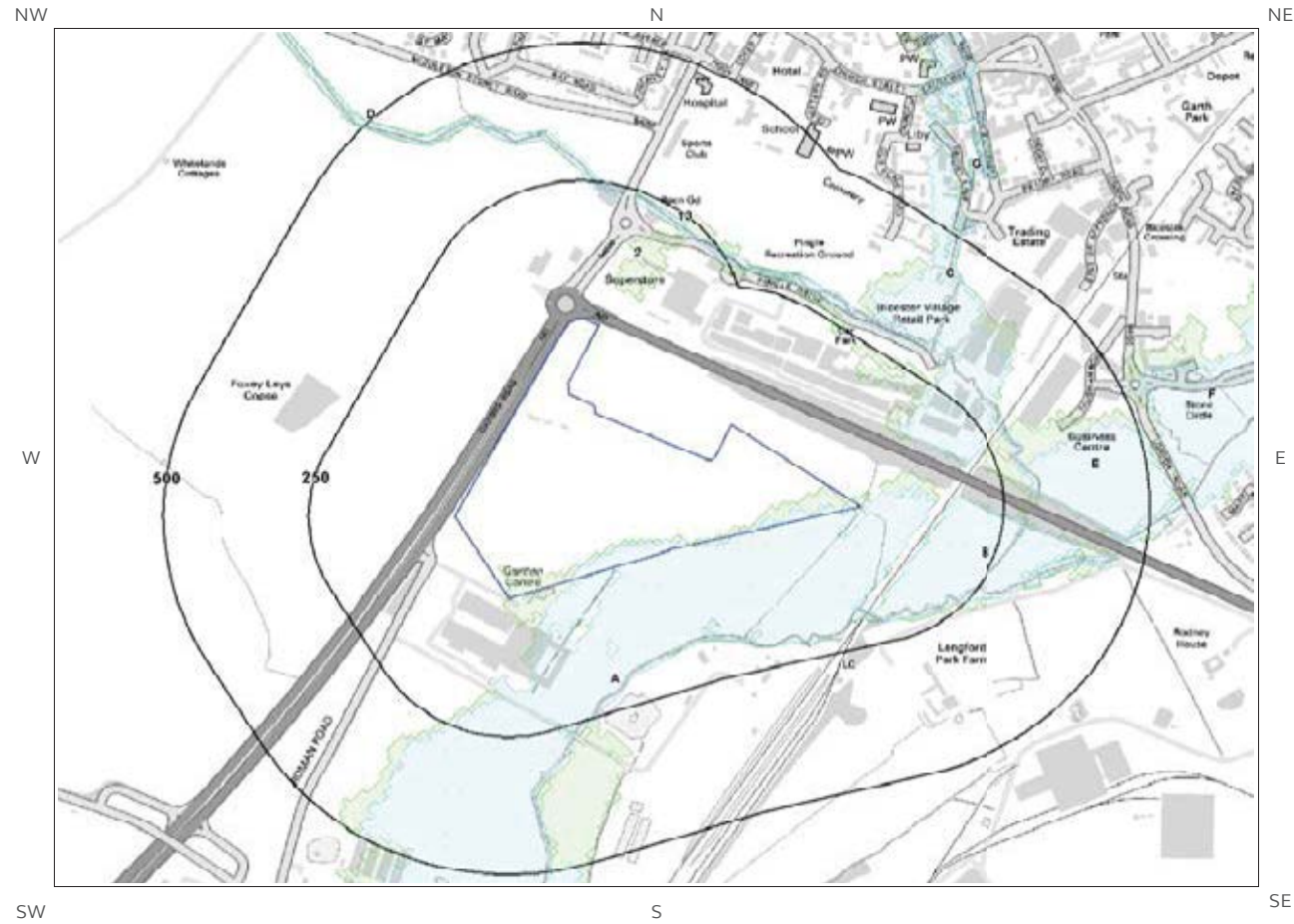
Are there any surface water features within 250m of the study site? Yes

The following surface water records are not represented on mapping:

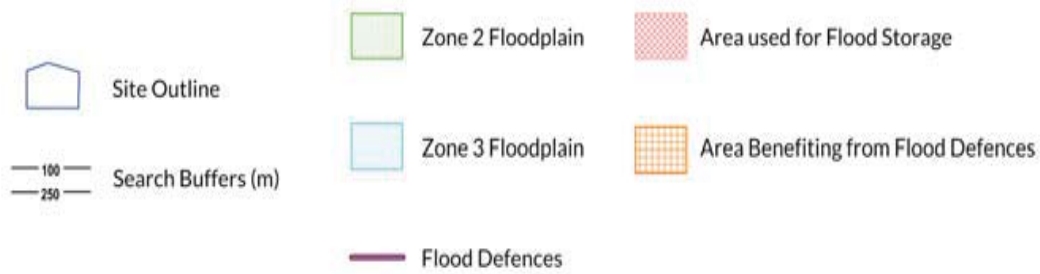
Distance (m)	Direction
0	On Site
8	S
10	NE
14	SE
57	NW
141	S
165	S
190	S
217	SE
225	S
227	NE
236	N



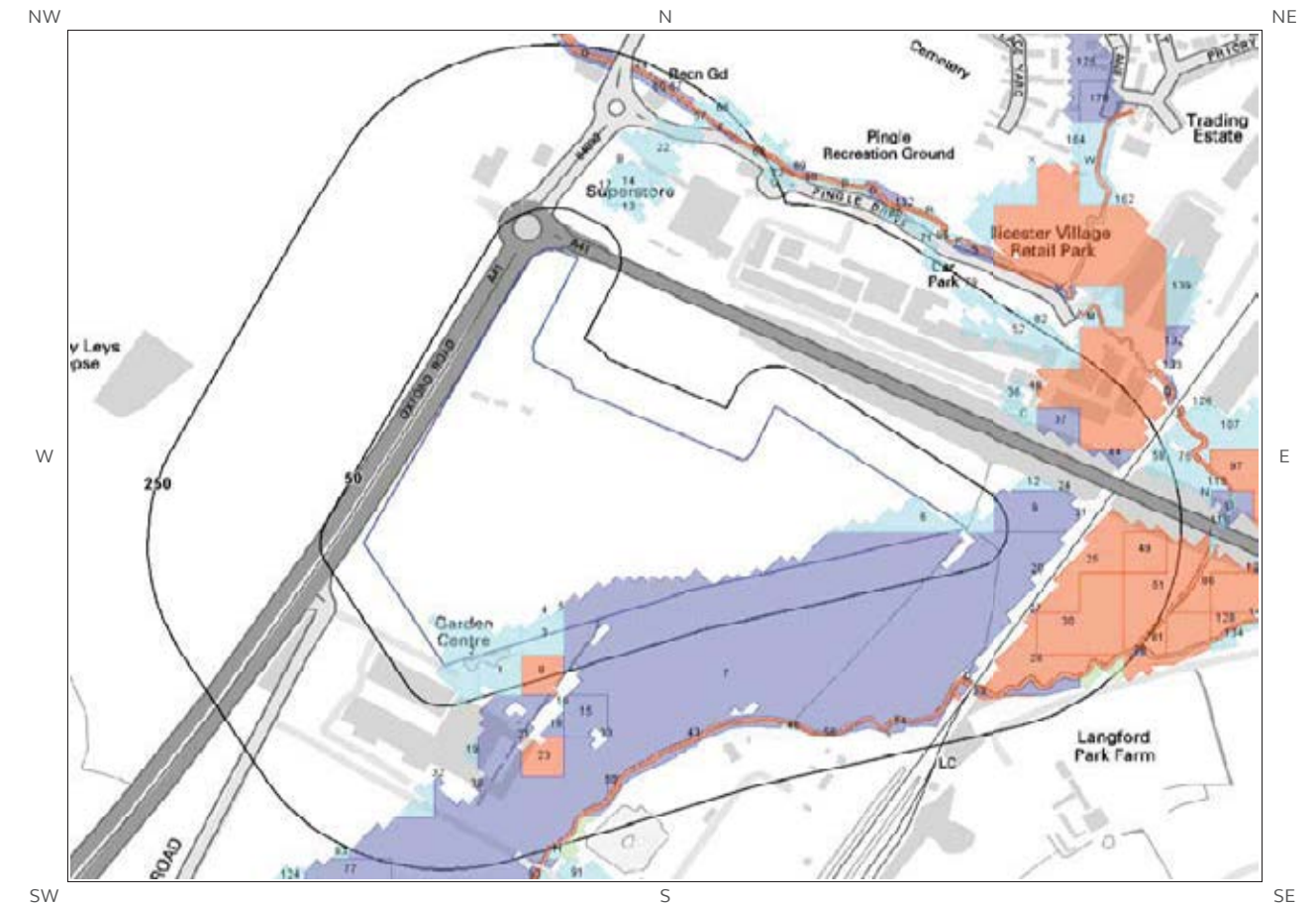
# 7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



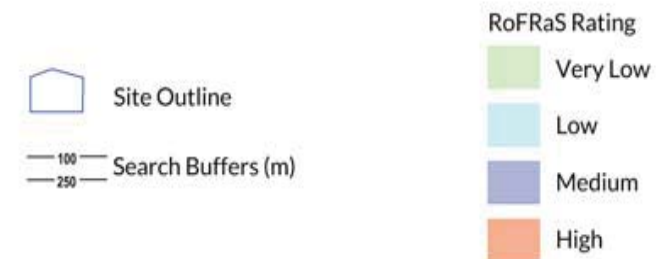
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# 7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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# 7 Flooding

## 7.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 2 floodplain? **Yes**

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1A	0	On Site	01-Feb-2017	Zone 2 - (Fluvial /Tidal Models)
2	72	NE	01-Feb-2017	Zone 2 - (Fluvial /Tidal Models)
3B	120	SE	01-Feb-2017	Zone 2 - (Fluvial /Tidal Models)
4C	140	NE	01-Feb-2017	Zone 2 - (Fluvial /Tidal Models)
5E	219	E	01-Feb-2017	Zone 2 - (Fluvial /Tidal Models)
6D	228	N	01-Feb-2017	Zone 2 - (Fluvial /Tidal Models)

## 7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 3 floodplain? **Yes**

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

ID	Distance (m)	Direction	Update	Type
1A	0	On Site	01-Feb-2017	Zone 3 - (Fluvial Models)
2	123	SE	01-Feb-2017	Zone 3 - (Fluvial Models)
3B	147	NE	01-Feb-2017	Zone 3 - (Fluvial Models)
4C	223	NE	01-Feb-2017	Zone 3 - (Fluvial Models)
5E	228	N	01-Feb-2017	Zone 3 - (Fluvial Models)
6D	249	NE	01-Feb-2017	Zone 3 - (Fluvial Models)

## 7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

What is the highest risk of flooding onsite? **Medium**

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Medium (greater than 1 in 100 but less than 1 in 30) chance of flooding in any given year.

Any relevant data within 250m is represented on the RoFRaS Flood map. Data to 50m is reported in the table below.

ID	Distance (m)	Direction	RoFRaS flood Risk
1	0.0	On Site	Low
2	0.0	On Site	Low
3	0.0	On Site	Low
4	0.0	On Site	Low
5	0.0	On Site	Low
6	0.0	On Site	Low
7	0.0	On Site	Medium
8	13.0	S	High
9	33.0	E	Medium
10A	46.0	NE	Low

## 7.4 Flood Defences

Are there any Flood Defences within 250m of the study site? **No**  
Database searched and no data found.

## 7.5 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? **No**

## 7.6 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? **No**

## 7.7 Groundwater Flooding Susceptibility Areas

7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding? Clearwater Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

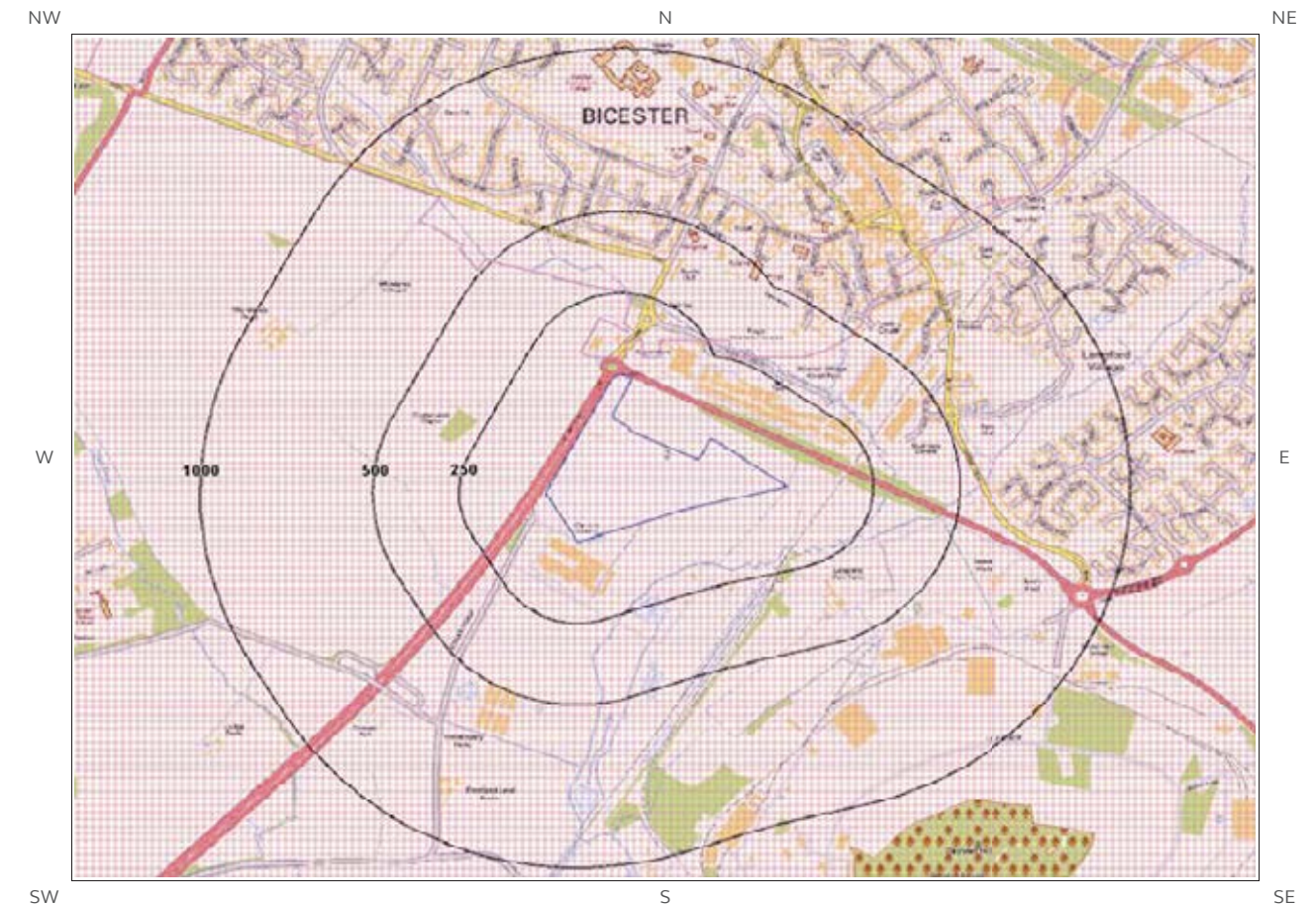
## 7.8 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result? High

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

# 8. Designated Environmentally Sensitive Sites Map



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# 8. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? Yes

## 8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

Database searched and no data found.

## 8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

Database searched and no data found.

## 8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

Database searched and no data found.

## 8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

Database searched and no data found.

## 8.5 Records of Ramsar sites within 2000m of the study site:

Database searched and no data found.

## 8.6 Records of Ancient Woodland within 2000m of the study site:

1

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
8	1092	SE	UNKNOWN	Ancient and Semi-Natural Woodland

## 8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

1

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
Not shown	1581	N	Bure Park	Natural England

## 8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

## 8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

2

The following Environmentally Sensitive Area records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	ESA Name	Data Source
Not shown	1061	S	Upper Thames Tributaries	Natural England
Not shown	1386	S	Upper Thames Tributaries	Natural England

**8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:**

0

Database searched and no data found.

**8.11 Records of National Parks (NP) within 2000m of the study site:**

0

Database searched and no data found.

**8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:**

0

Database searched and no data found.

**8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:**

4

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
2	0	On Site	Existing	DEFRA
3	55	N	New	DEFRA
Not shown	1386	S	Existing	DEFRA
Not shown	1733	E	Existing	DEFRA

**8.14 Records of Green Belt land within 2000m of the study site:**

0

Database searched and no data found.

# 9. Natural Hazards Findings

**9.1 Detailed BGS GeoSure Data**

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a Groundsure Geo Insight, available from our website. The following information has been found:

**9.1.1 Shrink Swell**

What is the maximum Shrink-Swell\* hazard rating identified on the study site? Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

**9.1.2 Landslides**

What is the maximum Landslide\* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

**9.1.3 Soluble Rocks**

What is the maximum Soluble Rocks\* hazard rating identified on the study site? Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Significant soluble rocks are present. Low possibility of subsidence occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow. Consider implications for stability when changes to drainage or new construction are planned. For new build site investigation should consider potential for dissolution problems on the site and its surroundings. Care should be taken with local drainage into the bedrock. Some possibility groundwater pollution. For existing property possible increase in insurance risk due to soluble rocks.

\* This indicates an automatically generated 50m buffer and site.

### 9.1.4 Compressible Ground

What is the maximum Compressible Ground\* hazard rating identified on the study site? Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

**Hazard**

Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

### 9.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks\* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

**Hazard**

Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

### 9.1.6 Running Sand

What is the maximum Running Sand\*\* hazard rating identified on the study site? Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

**Hazard**

Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

## 9.2 Radon

### 9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

\* This indicates an automatically generated 50m buffer and site.

### 9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

# 10. Mining

## 10.1 Coal Mining

Are there any coal mining areas within 75m of the study site? No

Database searched and no data found.

## 10.2 Non-Coal Mining

Are there any Non-Coal Mining areas within 50m of the study site boundary? No

Database searched and no data found.

## 10.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site? No

Guidance: No Guidance Required.

# Contact Details

**Groundsure Helpline**  
Telephone: 08444 159 000  
info@groundsure.com



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<https://www.groundsure.com/terms-and-conditions-sept-2016>





Buro Happold  
17 BURO HAPPOLD ENGINEERS LTD,  
NEWMAN STREET,  
LONDON, W1T 1PD

Groundsure Reference: GS-3722221  
Your Reference: 036269  
Report Date: 13 Mar 2017  
Report Delivery Method: Email - pdf

### Groundsure Geo Insight

Address: OXFORD ROAD, BICESTER, OX26 1BT

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,

Managing Director  
Groundsure Limited

Enc.  
Groundsure Geo Insight



# Groundsure Geo Insight

Address: OXFORD ROAD, BICESTER, OX26 1BT  
Date: 13 Mar 2017  
Reference: GS-3722221  
Client: Buro Happold



Aerial Photograph Capture date: 06-Sep-2015  
Grid Reference: 457807,221589  
Site Size: 14.50ha

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# Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

## Section 1: Geology 1:10,000 Scale

1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	Yes
	1.2.2 Are there any records of landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and Faults	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of faults within 500m of the study site boundary at 1:10,000 scale?	No

## Section 2: Geology 1:50,000 Scale

2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

## Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and Faults	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of faults within 500m of the study site boundary?	No

## Section 3: Radon

3. Radon	3.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
	3.2 Radon Protection	No radon protective measures are necessary.

## Section 4: Ground Workings

	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	1	19	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	0	4

## Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	0	0	0	0
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

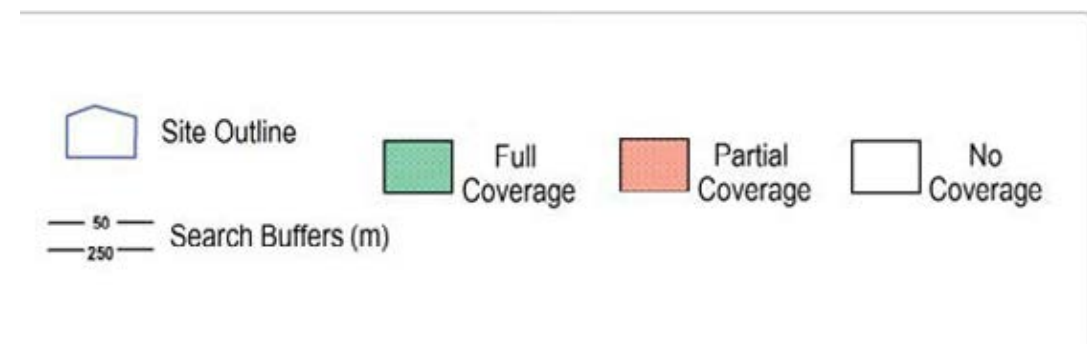
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
<b>Section 6: Natural Ground Subsidence</b>					
6.1 Shrink-Swell Clay	Moderate				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Low				
6.4 Compressible Deposits	Moderate				
6.5 Collapsible Deposits	Very Low				
6.5 Running Sand	Low				
<b>Section 7: Borehole Records</b>					
7 BGS Recorded Boreholes	On-site	0-50m	51-250		
	0	2	17		
<b>Section 8: Estimated Background Soil Chemistry</b>					
8 Records of Background Soil Chemistry	On-site	0-50m	51-250		
	12	5	0		
<b>Section 9: Railways and Tunnels</b>					
9.1 Tunnels	On-site	0-50m	51-250	250-500	
	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	15	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	12	Not Searched	
9.5 Railway Projects	0	0	0	0	

# 1:10,000 Scale Availability



1\_10,000 Availability Legend

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# Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

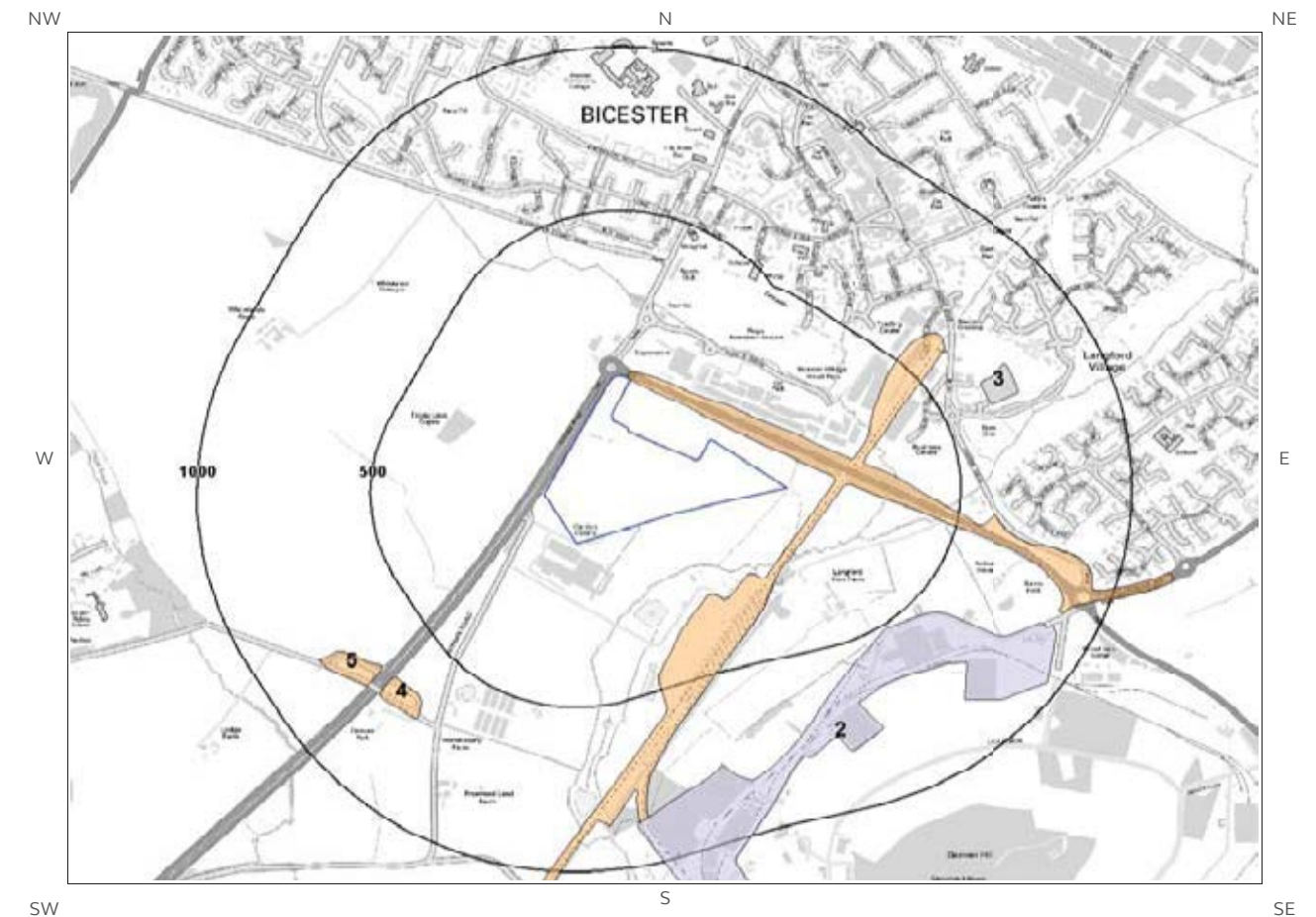
ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
N2	1386.0	Some deposits are mapped	Full	Full	No coverage
N3	1733.0	No deposits are mapped	No coverage	No coverage	No coverage

Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

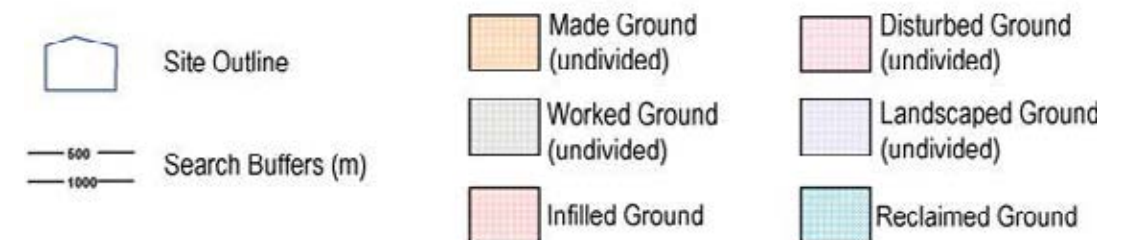
Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

# 1 Geology (1:10,000 scale). 1.1 Artificial Ground Map (1:10,000 scale)



Artificial Ground Legend

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# 1. Geology 1:10,000 scale

## 1.1 Artificial Ground

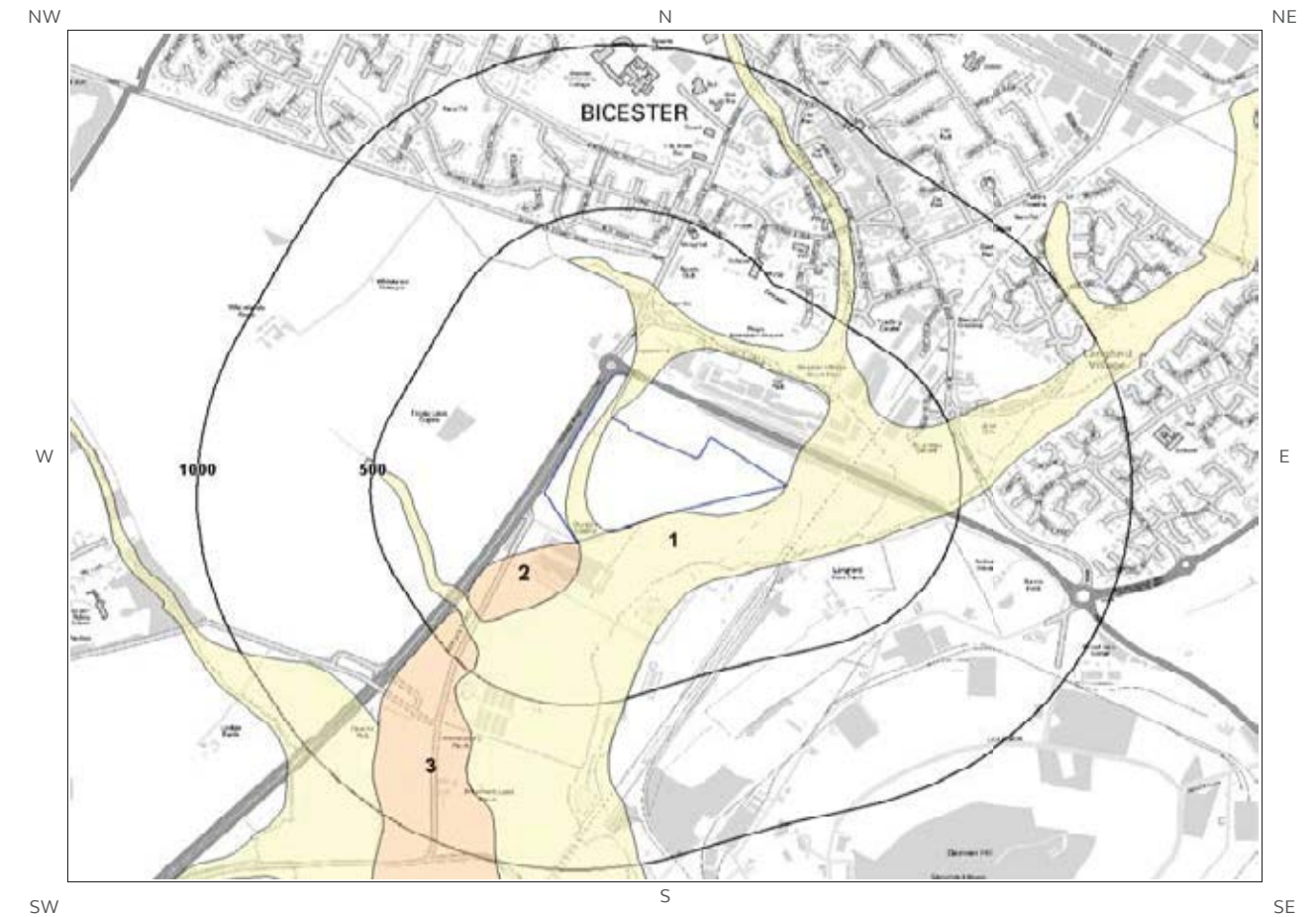
The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	1.0	NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

---

# 1.2 Superficial Deposits and Landslips Map (1:10,000 scale)



Artificial Ground Legend

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## 1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

### 1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	ALV-CSV	Alluvium - Sandy Gravelly Clay	Clay, Sandy, Gravelly
2	4.0	S	RTD1-XSV	River Terrace Deposits, 1 - Sand And Gravel	Sand And Gravel
3	400.0	SW	RTD1-XSV	River Terrace Deposits, 1 - Sand And Gravel	Sand And Gravel

### 1.2.2 Landslip

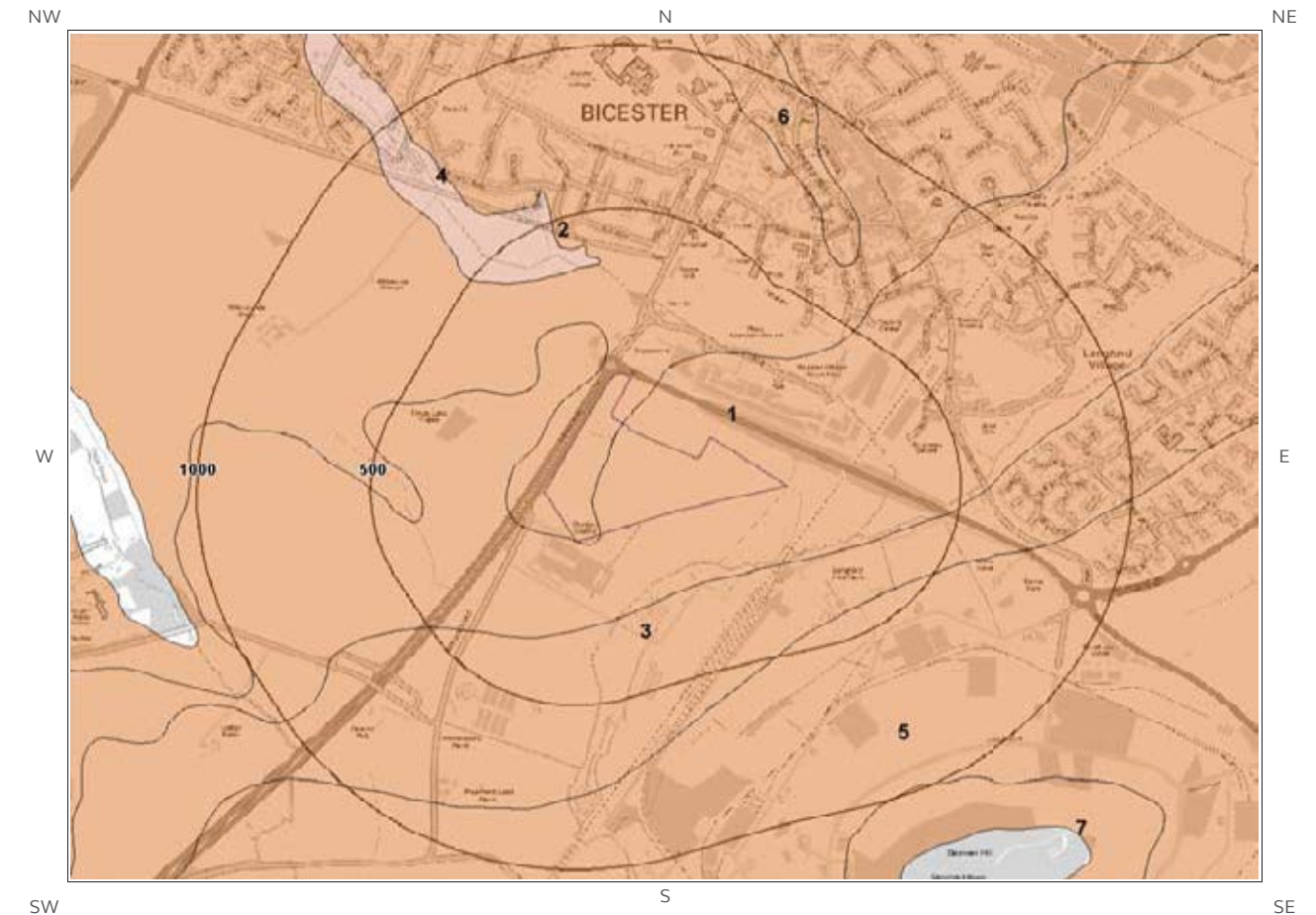
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

## 1.3 Bedrock and Faults Map (1:10,000 scale)



Bedrock and Faults Legend

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# 1.3 Bedrock and Faults

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

## 1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	KLC-MDST	Kellaways Clay Member - Mudstone	Callovian Age
2	0.0	On Site	CB-LMST	Cornbrash Formation - Limestone	Callovian Age - Bathonian Age
3	228.0	S	KLS-SDSL	Kellaways Sand Member - Sandstone And Siltstone, Interbedded	Callovian Age
4	336.0	N	FMB-LSMD	Forest Marble Formation - Interbedded Limestone And Mudstone	Bathonian Age
5	417.0	SE	PET-MDST	Peterborough Member - Mudstone	Callovian Age

## 1.3.2 Faults

Are there any records of Faults within 500m of the study site boundary at 1:10,000 scale? No

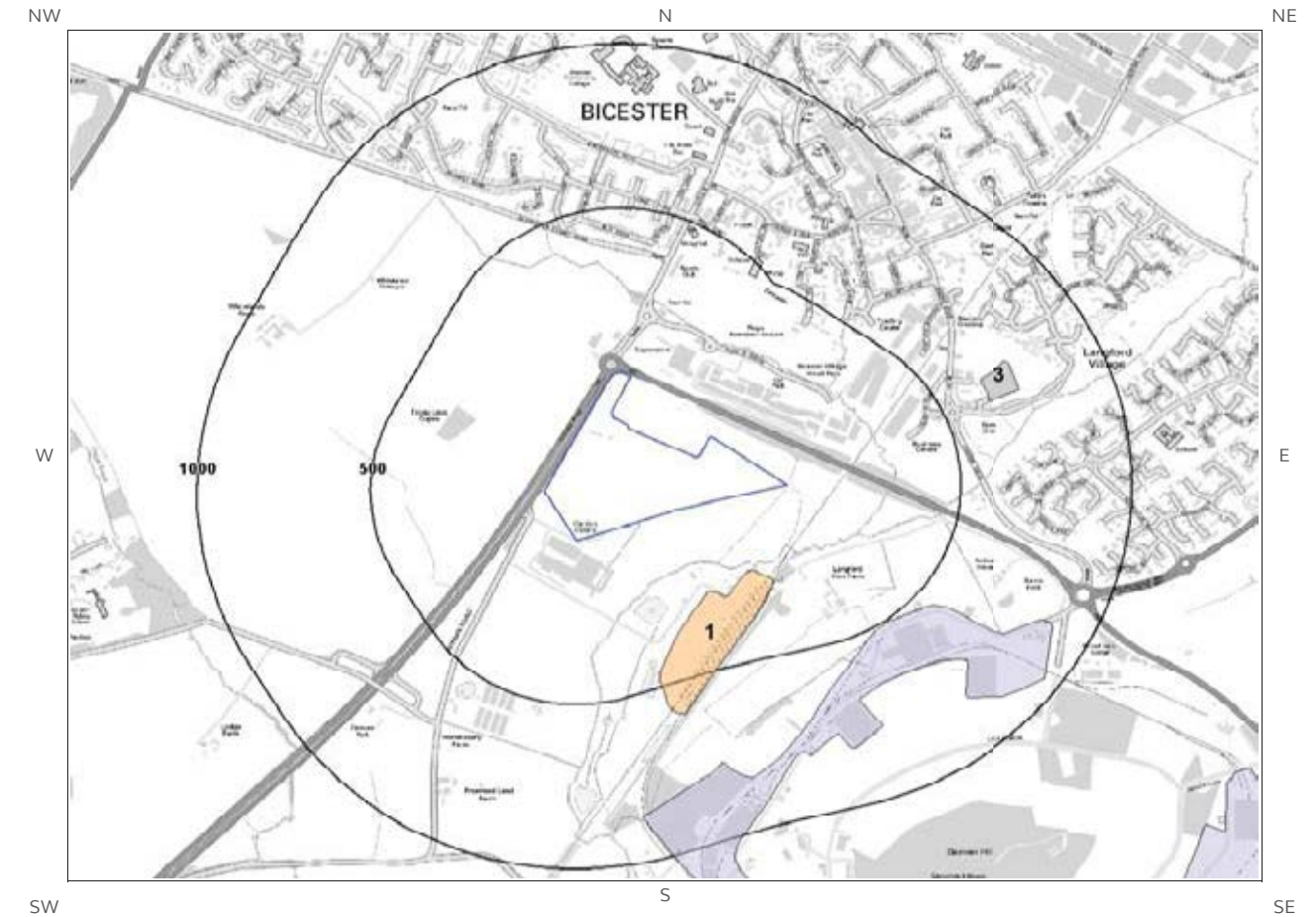
Database searched and no data found at this scale.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as Faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

# 2 Geology 1:50,000 Scale

## 2.1 Artificial Ground Map



Ground Workings Legend

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## 2. Geology 1:50,000 scale

### 2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 219

#### 2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? Yes

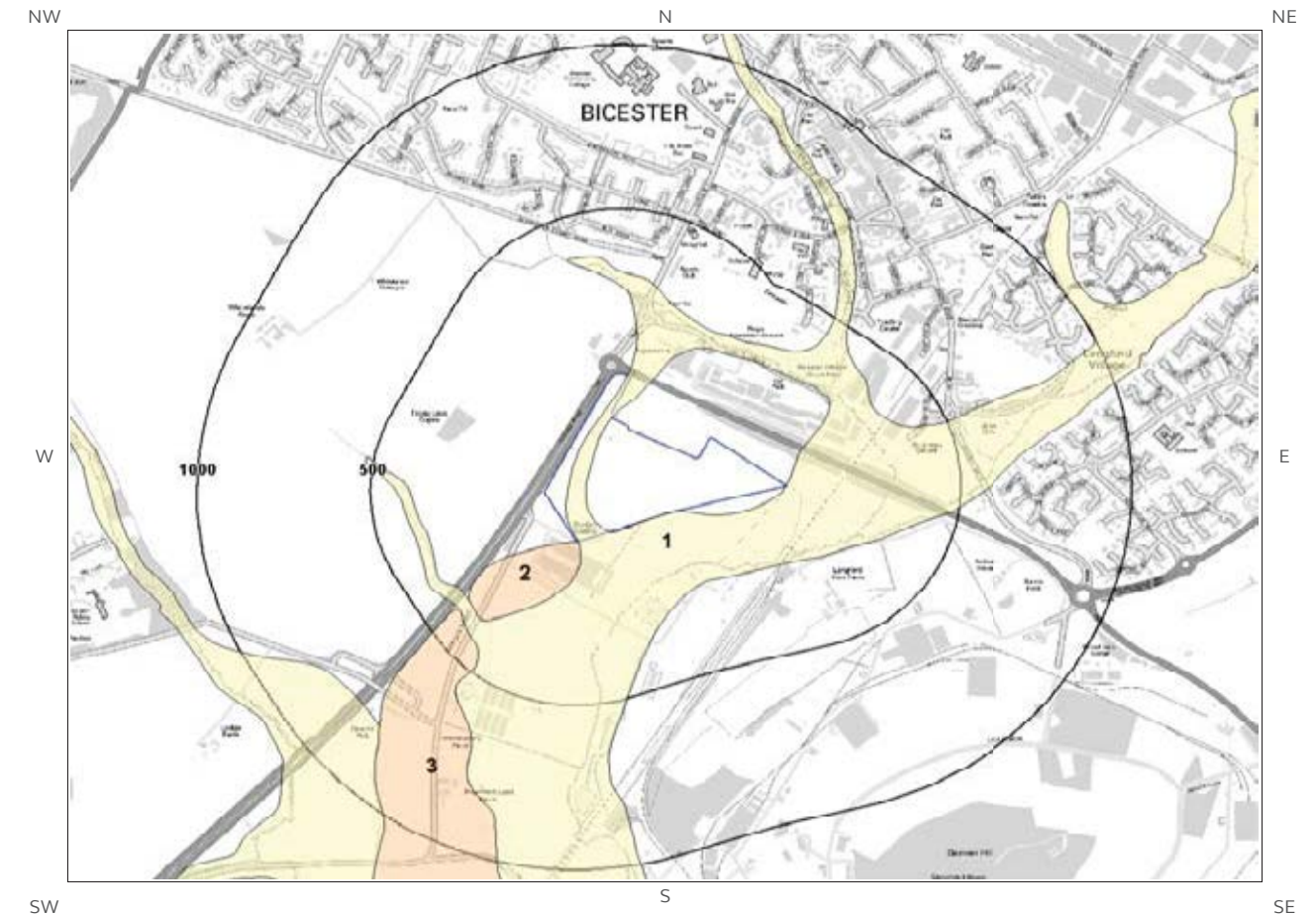
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	229.0	S	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

#### 2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

## 2.2 Superficial Deposits and Landslips Map (1:50,000 scale)



Ground Workings Legend

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## 2.2 Superficial Deposits and Landslips

### 2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	ALV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]
2	1.0	S	RTD1	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]
3	399.0	SW	RTD1	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]

### 2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	High	Very Low
1.0	S	Intergranular	Very High	High

### 2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

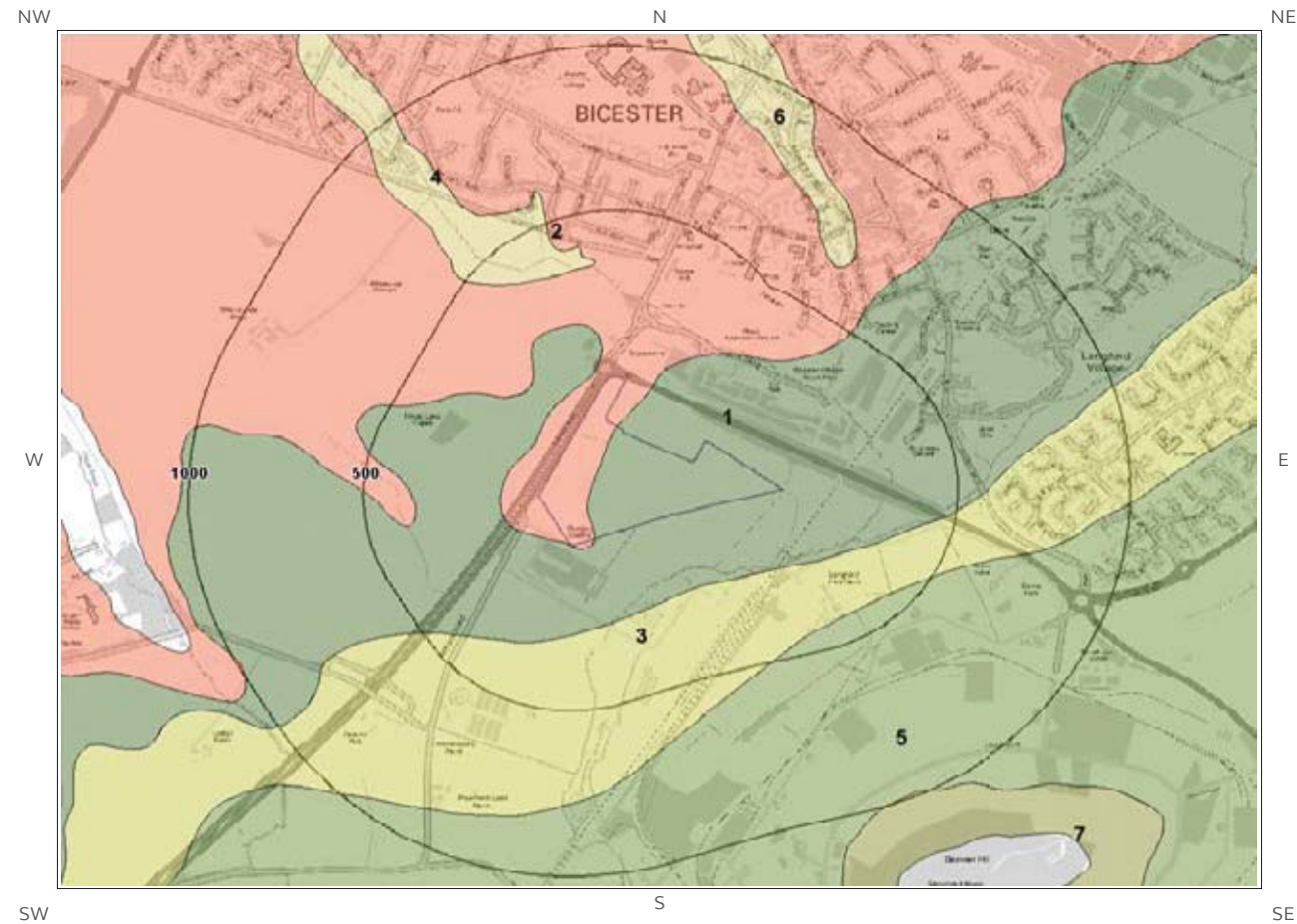
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

### 2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

## 2.3 Bedrock and Faults Map (1:50,000 scale)



Ground Workings Legend

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## 2.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 219

### 2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	KLC-MDST	Kellaways Clay Member - Mudstone	Callovian
2	0.0	On Site	CB-LMST	Cornbrash Formation - Limestone	Callovian / Bathonian
3	228.0	S	KLS-SDSL	Kellaways Sand Member - Sandstone And Siltstone, Interbedded	Callovian
4	338.0	N	FMB-LSMD	Forest Marble Formation - Limestone And Mudstone, Interbedded	Bathonian
5	417.0	SE	PET-MDST	Peterborough Member - Mudstone	Callovian

### 2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Very High	High
0.0	On Site	Fracture	Low	Very Low

### 2.3.3 Faults

Are there any records of Faults within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as Faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

## 3 Radon Data

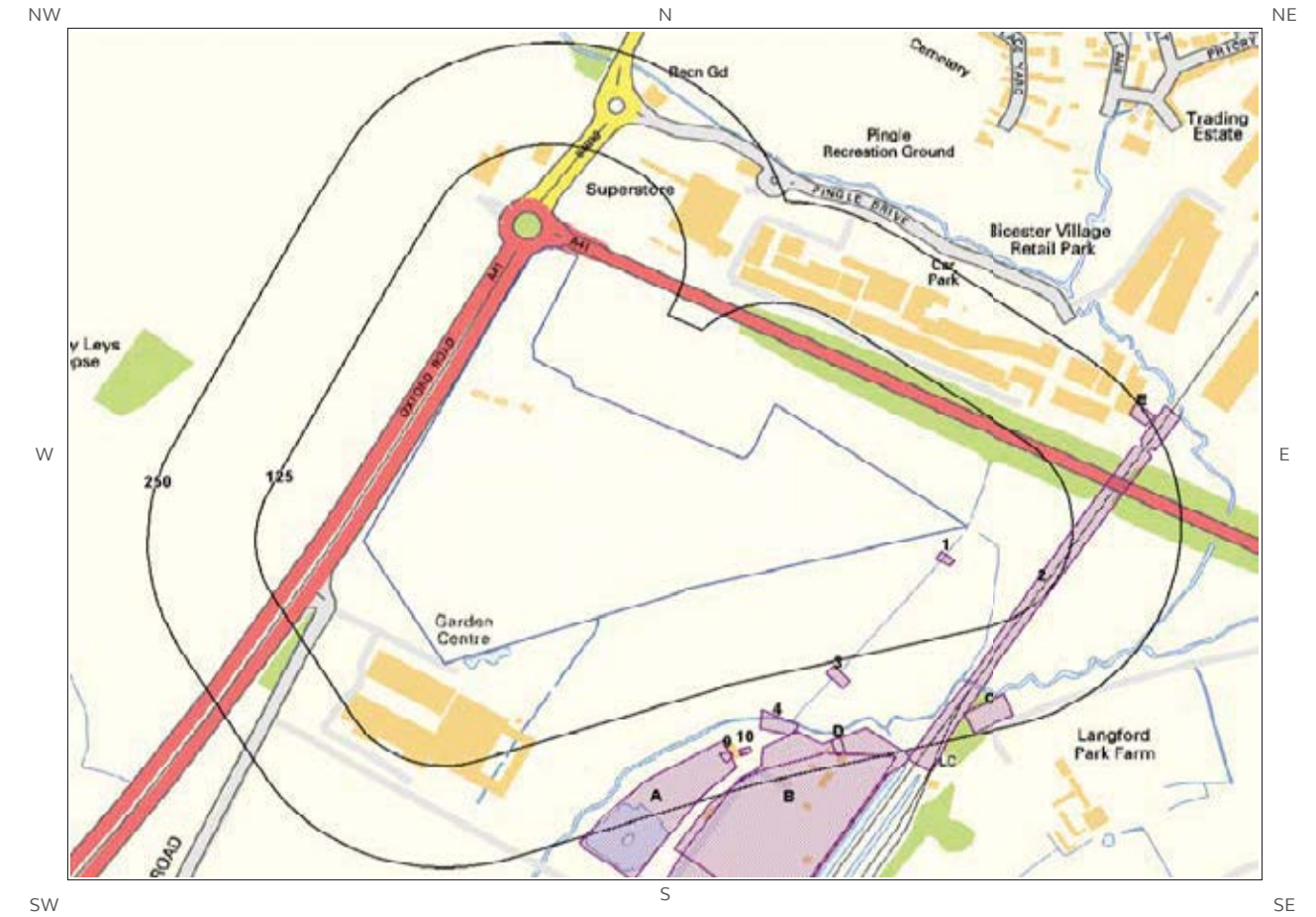
### 3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

### 3.2 Radon Protection

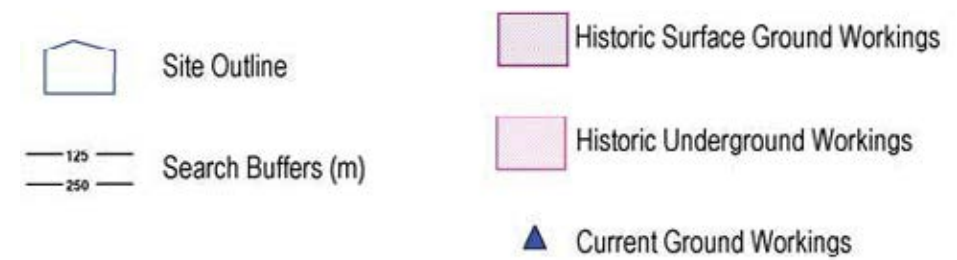
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

## 4 Ground Workings Map



Ground Workings Legend

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# 4 Ground Workings

## 4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1	22.0	S	458241 221515	Unspecified Heap	1950
2	106.0	SE	458371 221492	Cuttings	1880
3	130.0	S	458117 221369	Unspecified Heap	1950
4	163.0	S	458049 221314	Pond	1880
5A	188.0	S	457909 221207	Ponds	1995
6A	188.0	S	457909 221207	Ponds	1985
7B	199.0	S	458051 221163	Sewage Works	1995
8B	199.0	S	458051 221163	Sewage Works	1985
9	202.0	S	457988 221272	Unspecified Heap	1950
10	204.0	S	458009 221279	Sewage Tank	1880
11C	210.0	S	458293 221325	Pond	1985
12C	210.0	S	458293 221325	Pond	1995
13C	210.0	S	458293 221325	Pond	1970
14D	215.0	S	458117 221286	Sewage Tank	1898
15D	215.0	S	458117 221286	Sewage Tank	1919
16D	215.0	S	458117 221286	Sewage Tank	1879
17B	231.0	S	458056 221176	Sewage Farm	1970
18E	234.0	NE	458472 221691	Unspecified Heap	1879
19E	234.0	NE	458472 221691	Unspecified Heap	1919
20E	234.0	NE	458472 221691	Unspecified Heap	1898

## 4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

## 4.3 Current Ground Workings

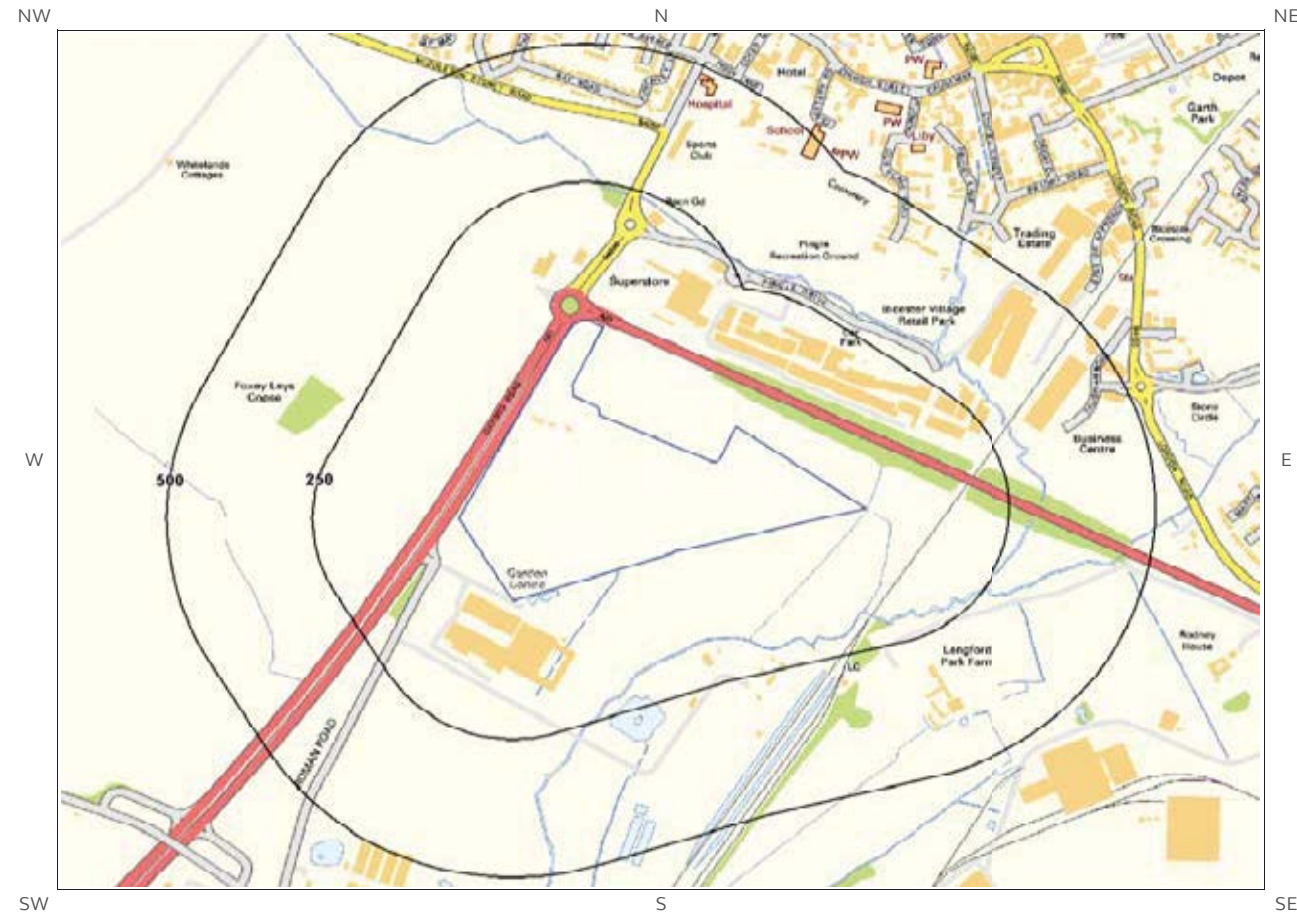
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	742.0	NE	458929 221890	Clay & Shale	The Priory	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	808.0	SW	457118 220789	Clay & Shale	Promised-land Farm	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	919.0	SW	457051 220699	Clay & Shale	Promised-land Farm	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	998.0	S	457965 220435	Limestone	Langford Lane	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

# 5 Mining, Extraction & Natural Cavities Map



Mining, Extraction and Natural Cavities Legend

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# 5 Mining, Extraction & Natural Cavities

## 5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

## 5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

## 5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

## 5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

### 5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

---

### 5.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

---

### 5.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

---

### 5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

---

### 5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

---

### 5.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

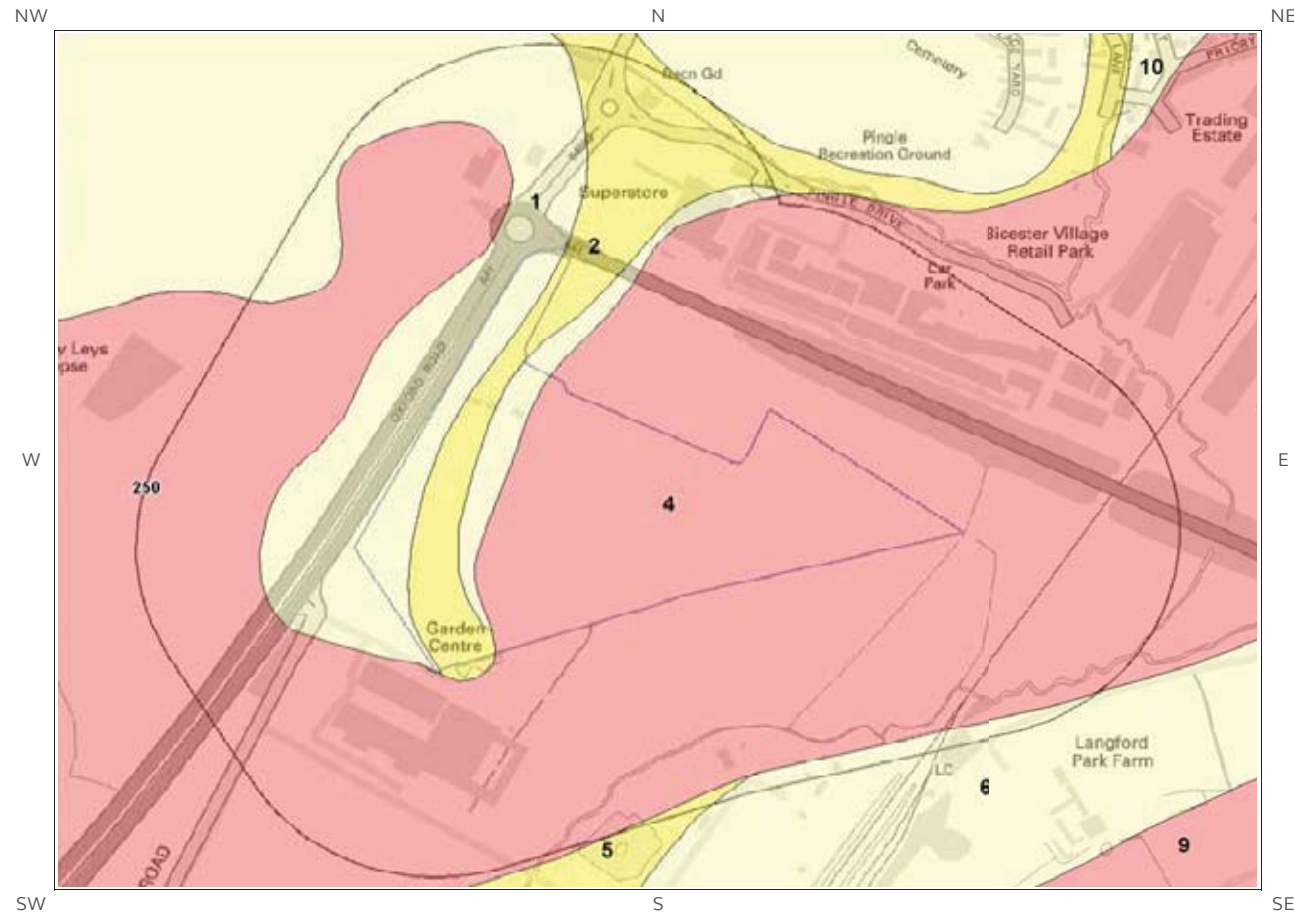
Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

---

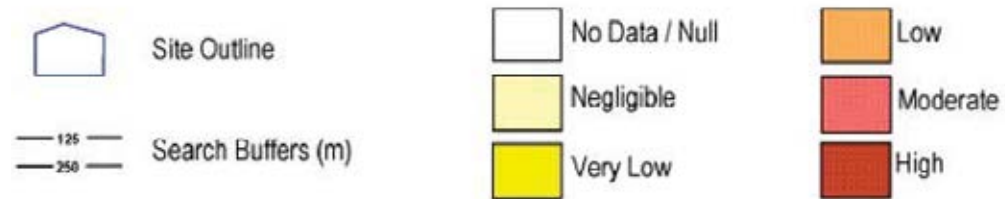
# 6 Natural Ground Subsidence

## 6.1 Shrink-Swell Clay Map

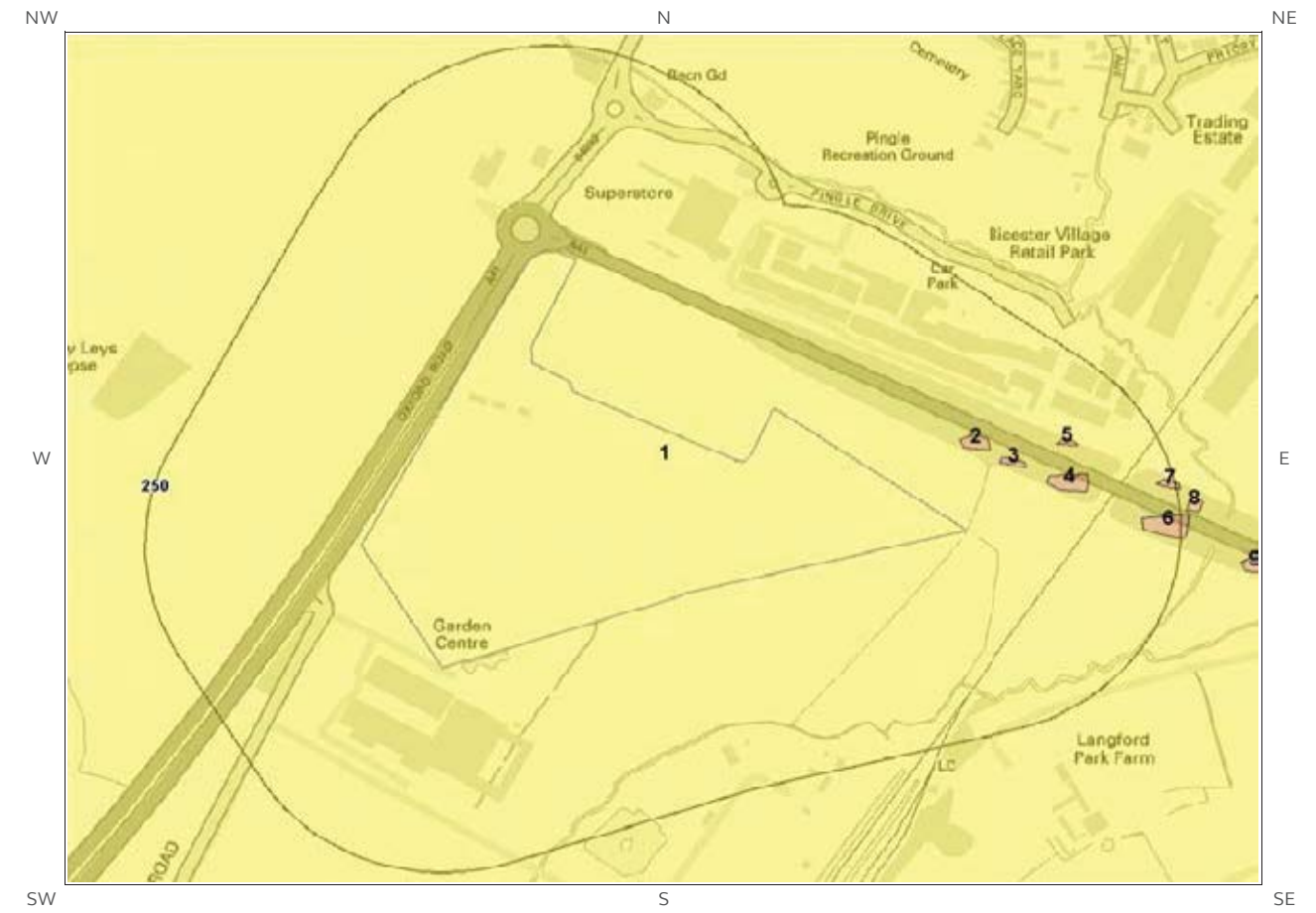


Shrink Swell Clay Legend

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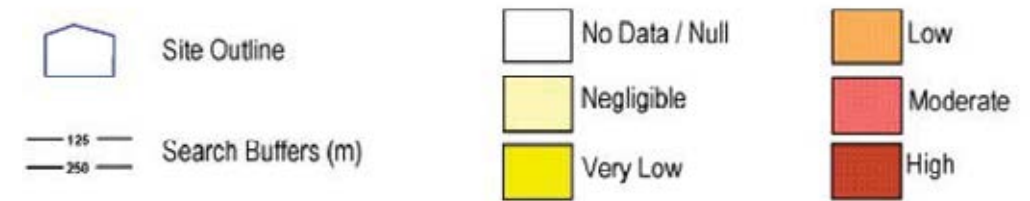


## 6.2 Landslides Map



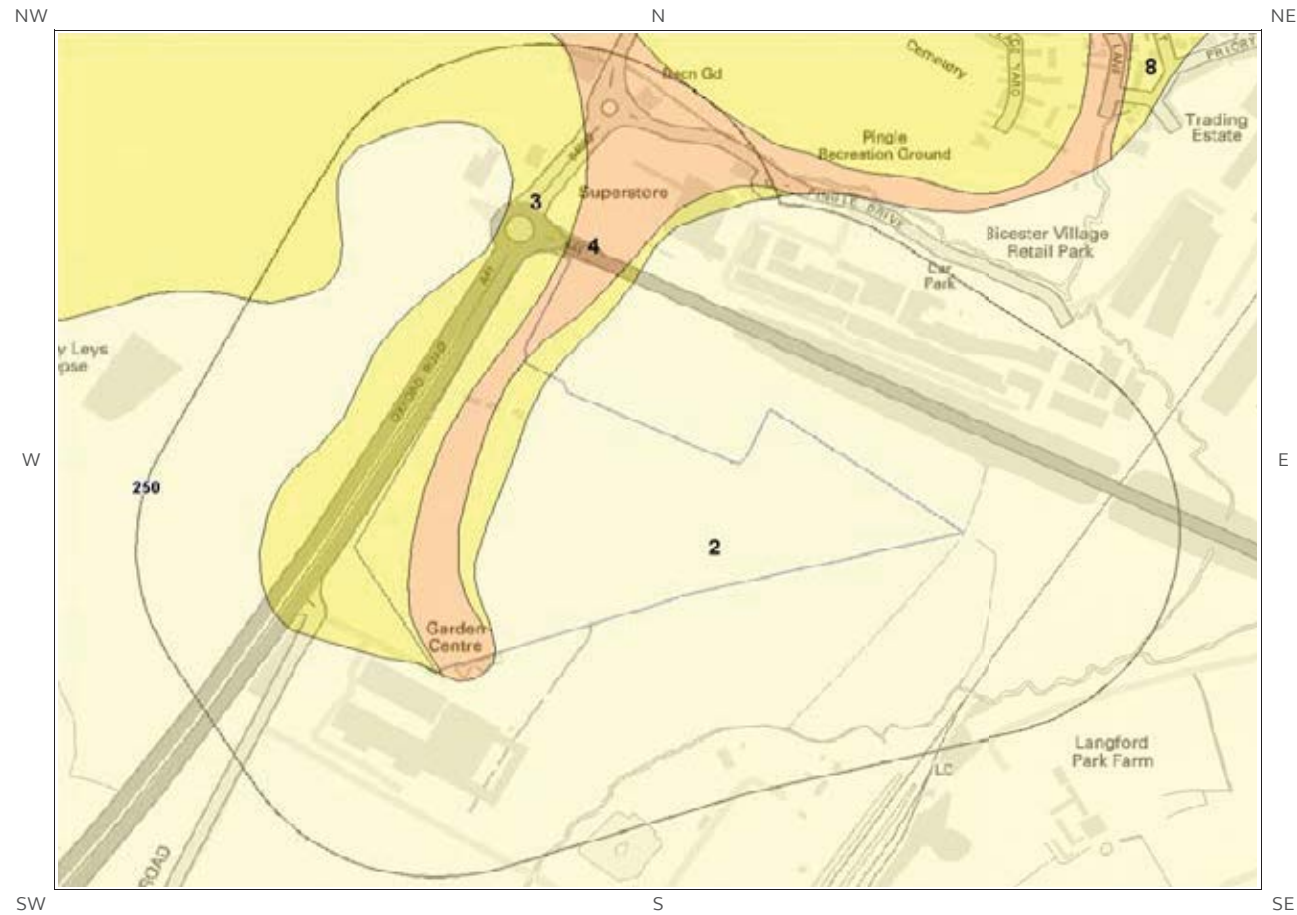
Landslides Legend

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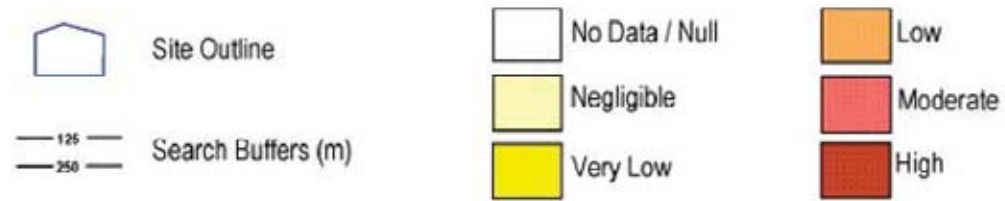


## 6.3 Ground Dissolution of Soluble Rocks Map



Ground Dissolution  
Soluble Rocks Legend

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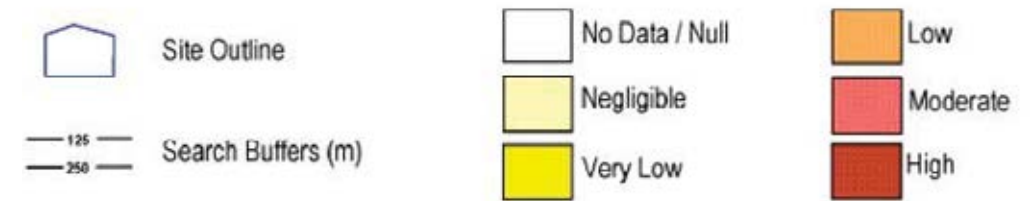


## 6.4 Compressible Deposits Map

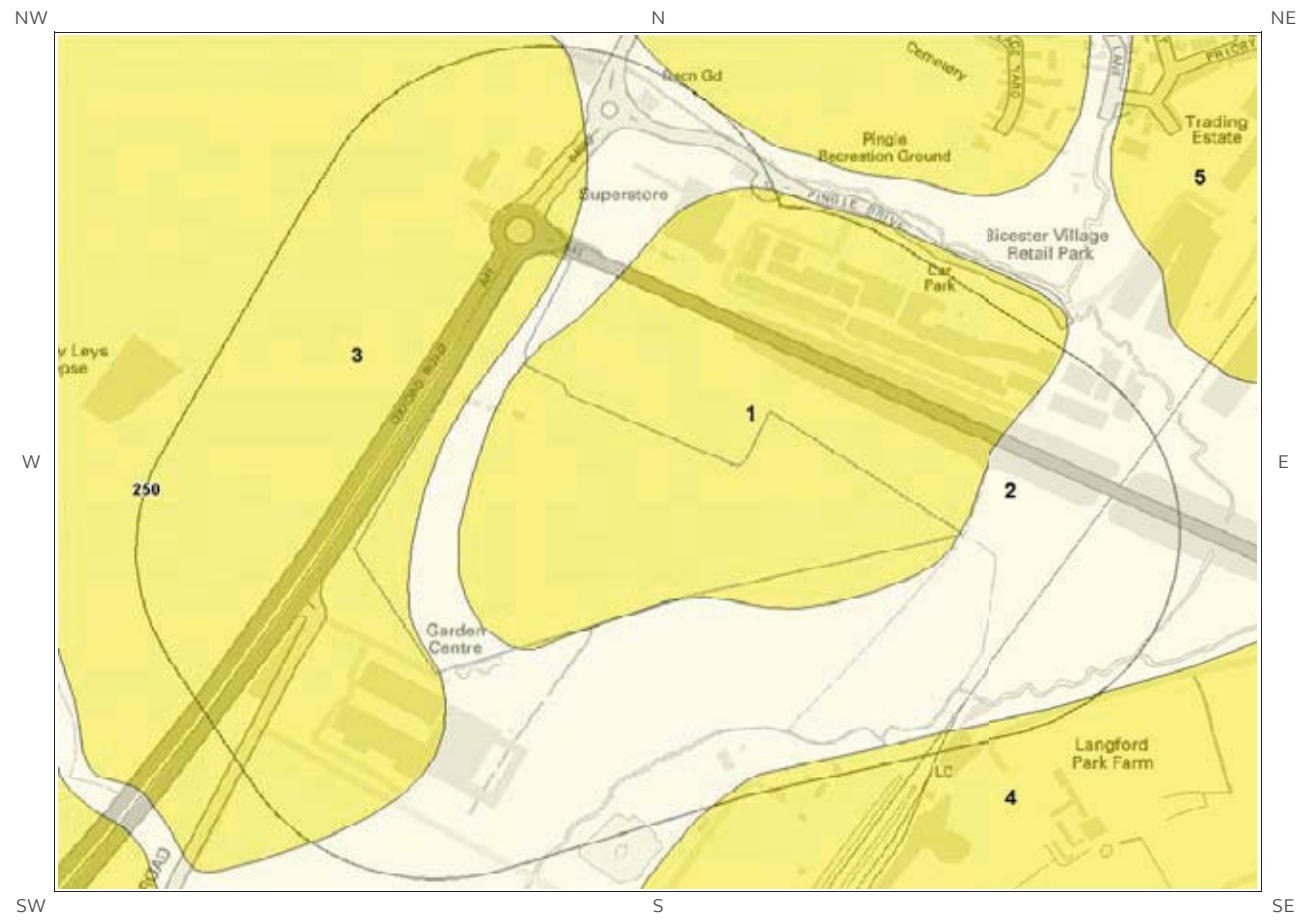


Compressible Deposits Legend

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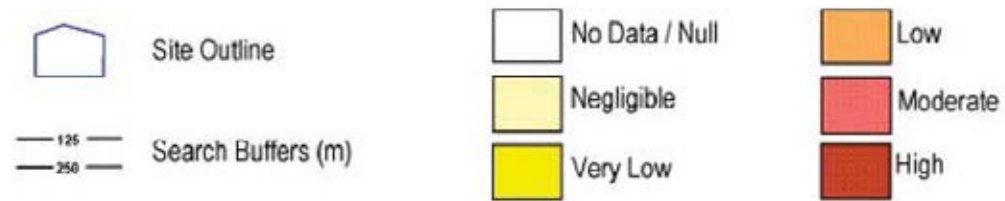


## 6.5 Collapsible Deposits Map

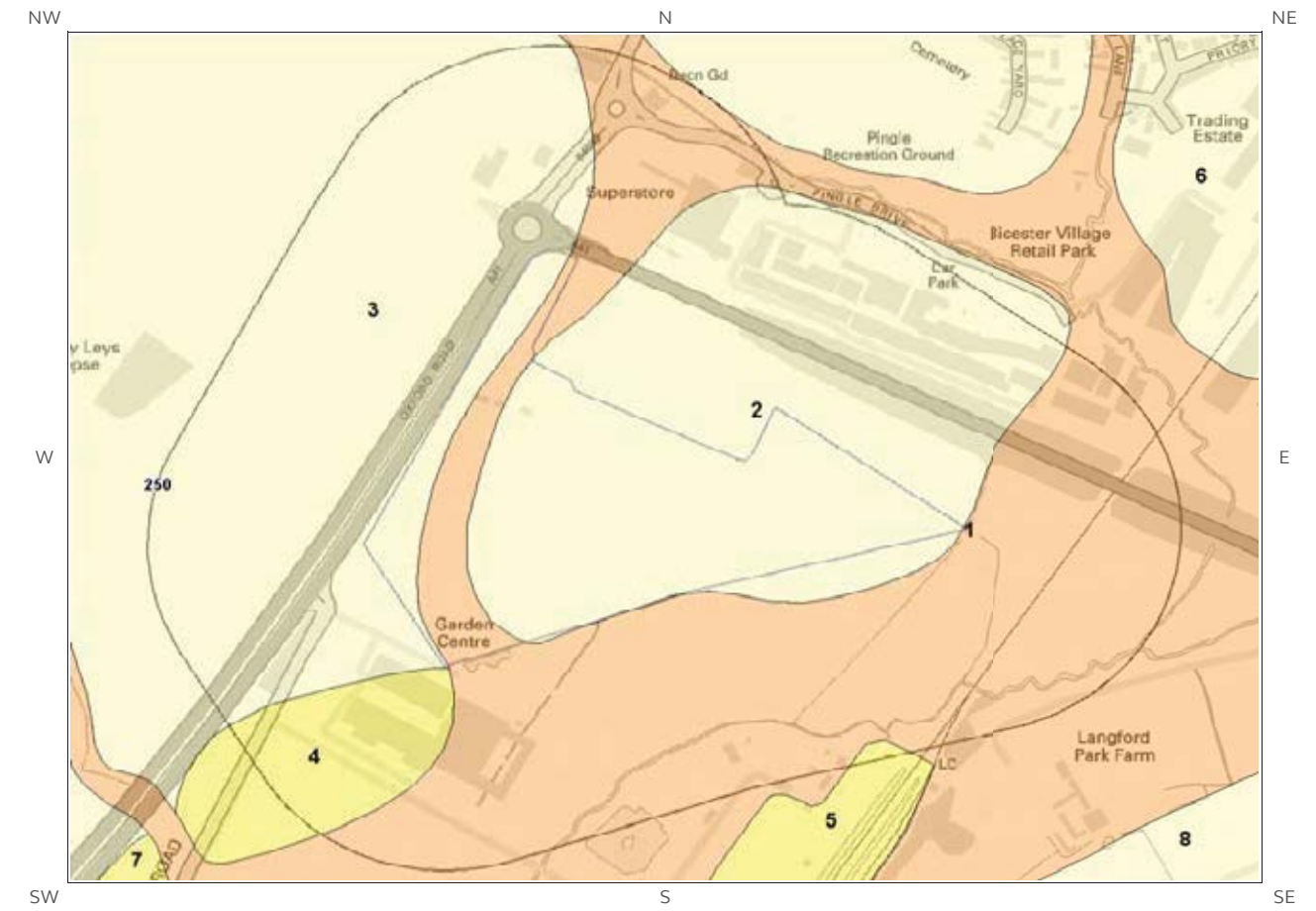


Collapsible Deposits Legend

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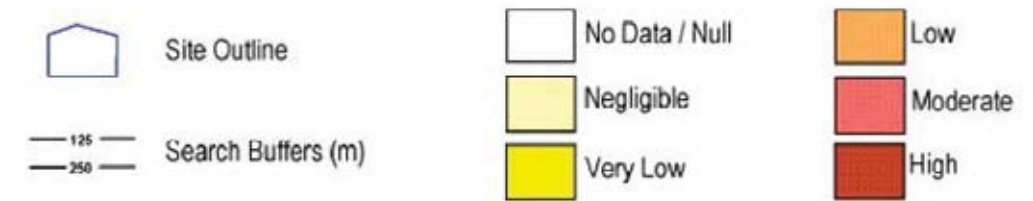


## 6.6 Running Sand Map



Running Sand Legend

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# 6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site\*\* boundary? Moderate

## 6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.
2	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
3	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.
4	0.0	On Site	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

\* This includes an automatically generated 50m buffer zone around the site

## 6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

## 6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.
2	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.
3	0.0	On Site	Very Low	Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.
4	0.0	On Site	Low	Significant soluble rocks are present. Low possibility of subsidence occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow. Consider implications for stability when changes to drainage or new construction are planned. For new build - site investigation should consider potential for dissolution problems on the site and its surroundings. Care should be taken with local drainage into the bedrock. Some possibility groundwater pollution. For existing property - possible increase in insurance risk due to soluble rocks.

## 6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

ID	Distance (m)	Direction	Hazard Rating	Details
2	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
3	0.0	On Site	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

## 6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

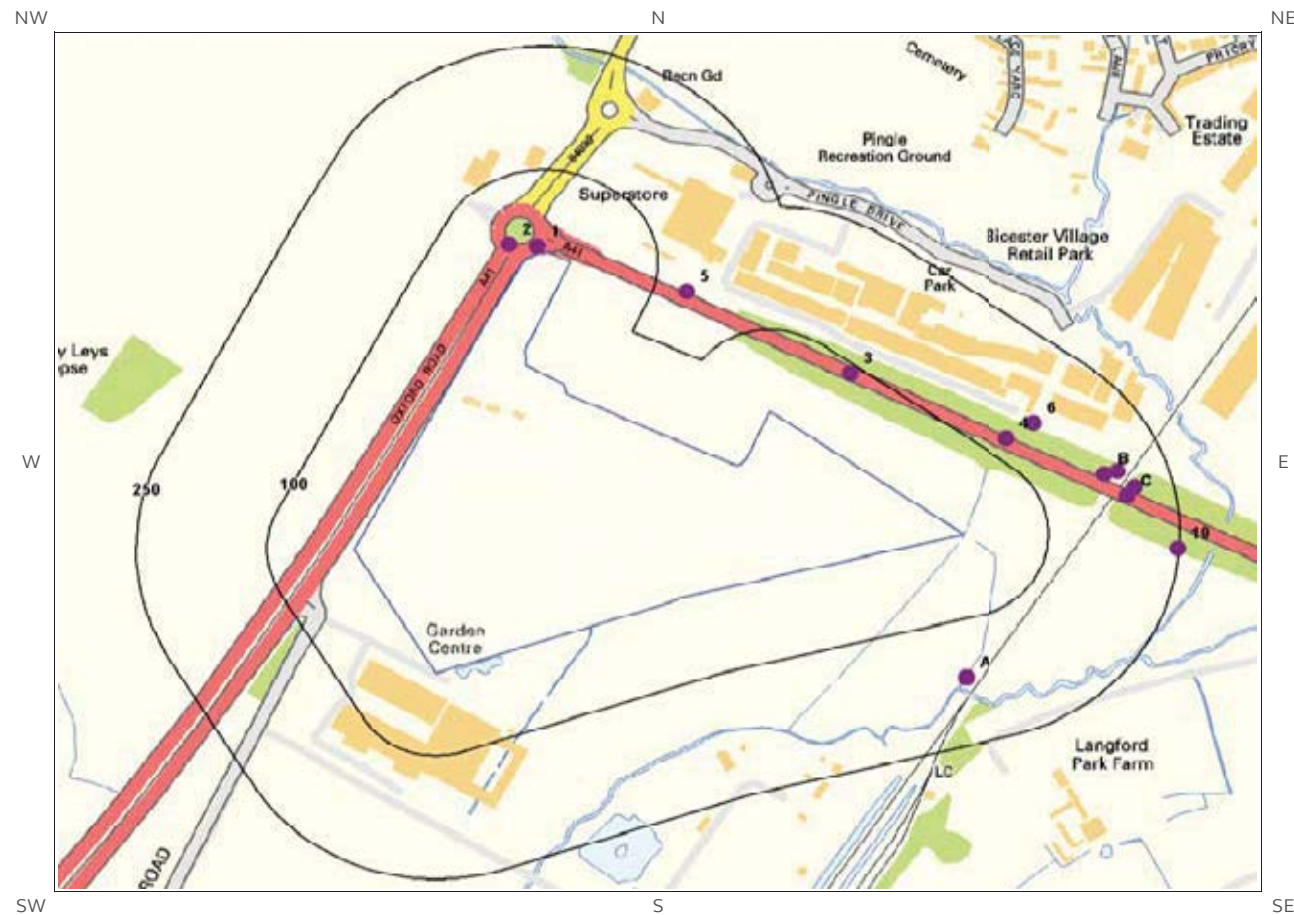
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
3	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

## 6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.
2	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
3	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
4	1.0	S	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

# 7 Borehole Records Map



Borehole Records Legend

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# 7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:

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ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	8.0	NW	457777 221902	SP52SE88	0.0	BICESTER SOUTHERN BYPASS TP 2
2	25.0	NW	457745 221904	SP52SE87	1.0	BICESTER SOUTHERN BYPASS TP 1
3	88.0	NE	458136 221748	SP52SE90	5.0	BICESTER SOUTHERN BYPASS 4
4	125.0	NE	458318 221670	SP52SE91	6.2	BICESTER SOUTHERN BYPASS 5
5	138.0	E	457949 221847	SP52SE89	1.0	BICESTER SOUTHERN BYPASS TP 3
6	158.0	NE	458350 221688	SP52SE92	6.0	BICESTER SOUTHERN BYPASS 6
7A	170.0	S	458270 221380	SP52SE82	8.0	SEWAGE TREATMENT WORKS BH421/8
8A	170.0	S	458270 221380	SP52SE80	9.0	SEWAGE TREATMENT WORKS BH421/6
9A	170.0	S	458270 221380	SP52SE75	6.0	SEWAGE TREATMENT WORKS BH421/1
10A	170.0	S	458270 221380	SP52SE79	10.2	SEWAGE TREATMENT WORKS BH421/5
11A	170.0	S	458270 221380	SP52SE77	7.2	SEWAGE TREATMENT WORKS BH421/3
12A	170.0	S	458270 221380	SP52SE76	6.0	SEWAGE TREATMENT WORKS BH421/2
13A	170.0	S	458270 221380	SP52SE81	10.0	SEWAGE TREATMENT WORKS BH421/7
14A	170.0	S	458270 221380	SP52SE78	11.0	SEWAGE TREATMENT WORKS BH421/4
15B	178.0	NE	458430 221626	SP52SE93	7.4	BICESTER SOUTHERN BYPASS 7
16B	194.0	NE	458445 221630	SP52SE94	15.45	BICESTER SOUTHERN BYPASS 8
17C	195.0	E	458456 221600	SP52SE95	25.0	BICESTER SOUTHERN BYPASS 9
18C	206.0	E	458465 221610	SP52SE96	7.95	BICESTER SOUTHERN BYPASS 10
19	248.0	E	458514 221536	SP52SE98	8.35	BICESTER SOUTHERN BYPASS 12

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

- #1: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336788](https://scans.bgs.ac.uk/sobi_scans/boreholes/336788)
- #2: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336787](https://scans.bgs.ac.uk/sobi_scans/boreholes/336787)
- #3: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336790](https://scans.bgs.ac.uk/sobi_scans/boreholes/336790)
- #4: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336791](https://scans.bgs.ac.uk/sobi_scans/boreholes/336791)
- #5: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336789](https://scans.bgs.ac.uk/sobi_scans/boreholes/336789)
- #6: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336792](https://scans.bgs.ac.uk/sobi_scans/boreholes/336792)
- #7A: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336782](https://scans.bgs.ac.uk/sobi_scans/boreholes/336782)
- #8A: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336780](https://scans.bgs.ac.uk/sobi_scans/boreholes/336780)
- #9A: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336775](https://scans.bgs.ac.uk/sobi_scans/boreholes/336775)
- #10A: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336779](https://scans.bgs.ac.uk/sobi_scans/boreholes/336779)
- #11A: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336777](https://scans.bgs.ac.uk/sobi_scans/boreholes/336777)
- #12A: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336776](https://scans.bgs.ac.uk/sobi_scans/boreholes/336776)
- #13A: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336781](https://scans.bgs.ac.uk/sobi_scans/boreholes/336781)
- #14A: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336778](https://scans.bgs.ac.uk/sobi_scans/boreholes/336778)
- #15B: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336793](https://scans.bgs.ac.uk/sobi_scans/boreholes/336793)
- #16B: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336794](https://scans.bgs.ac.uk/sobi_scans/boreholes/336794)
- #17C: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336795](https://scans.bgs.ac.uk/sobi_scans/boreholes/336795)
- #18C: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336796](https://scans.bgs.ac.uk/sobi_scans/boreholes/336796)
- #19: [scans.bgs.ac.uk/sobi\\_scans/boreholes/336798](https://scans.bgs.ac.uk/sobi_scans/boreholes/336798)

## 8 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

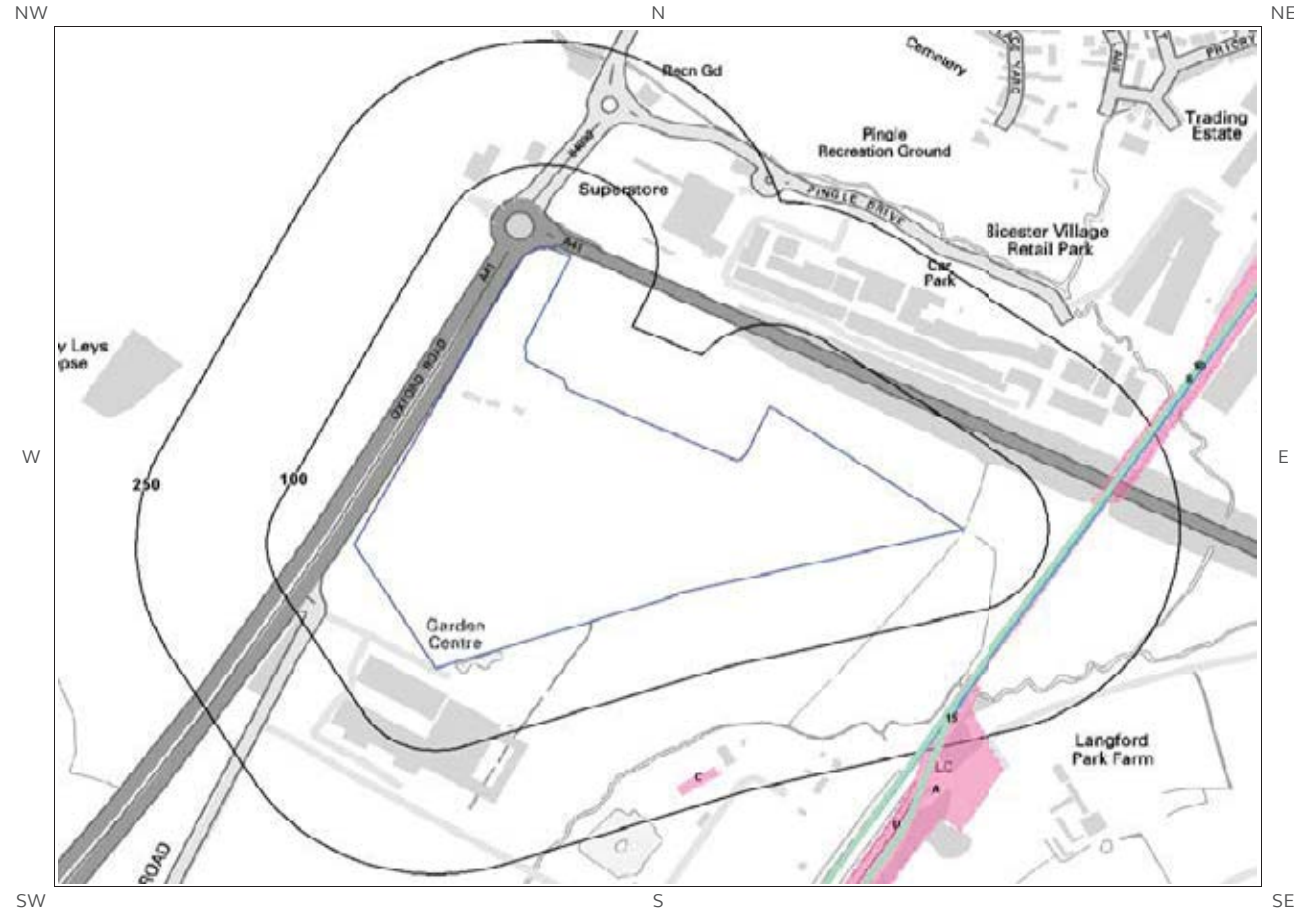
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For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
1.0	S	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
1.0	S	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
1.0	SW	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
17.0	S	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<100 mg/kg
42.0	NW	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg



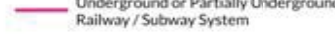
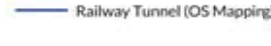
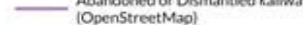

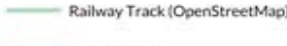
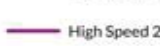



\*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

# 9 Railways and Tunnels Map



Railways and Tunnels Legend

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-  Site Outline
-  Search Buffers (m)
-  Underground or Partially Underground Railway / Subway System
-  Railway Tunnel (OS Mapping)
-  Abandoned or Dismantled Railway (OpenStreetMap)
-  Railway Track (OS Mapping)
-  Railway Track (OpenStreetMap)
-  High Speed 2
-  High Speed 2 Revised Proposed Route
-  Crossrail 1
-  Railway and/or Tunnel Feature from Historical Mapping

# 9 Railways and Tunnels

## 9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

*Any records that have been identified are represented on the Railways and Tunnels Map.*

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

*Any records that have been identified are represented on the Railways and Tunnels Map.*

## 9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
5B	115	SE	458371 221497	Railway Sidings	1995
6B	115	SE	458371 221497	Railway Sidings	1996
7B	115	SE	458371 221497	Railway Sidings	1996
8	150	E	n/a	Railway	1922
1A	172	S	457851 220688	Railway Sidings	1985
2A	172	S	457851 220688	Railway Sidings	1966

ID	Distance (m)	Direction	NGR	Details	Date
3A	172	S	457851 220688	Railway Sidings	1970
4A	172	S	457851 220688	Railway Sidings	1995
9	178	E	n/a	Railway	1881
10	181	E	n/a	Railway	1875
11C	211	S	457963 221249	Railway Sidings	1995
12C	211	S	457963 221249	Railway Sidings	1995
13D	213	S	458177 221166	Railway Sidings	1992
14D	213	S	458177 221166	Railway Sidings	1986
15	216	S	458253 221322	Railway Sidings	1966

*Any records that have been identified are represented on the Railways and Tunnels Map.*

### 9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above  
*Any records that have been identified are represented on the Railways and Tunnels Map.*

### 9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Name	Type
111	SE	Not given	Rail
111	SE	Not given	Rail
116	SE	Not given	Multi Track
116	SE	Not given	Multi Track
190	E	Not given	Multi Track
190	E	Not given	Multi Track
197	S	Not given	Multi Track
197	S	Not given	Multi Track
197	S	Not given	Multi Track
197	S	Not given	Multi Track

Distance (m)	Direction	Name	Type
200	S	Bicester Military Railway	Rail
200	S	Bicester Military Railway	Rail

Multiple sections of the same track may be listed in the detail above  
*Any records that have been identified are represented on the Railways and Tunnels Map.*

### 9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? No

Is the study site within 500m of the route of the Crossrail 1 rail project? No

*Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.*

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.



# Contact Details



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Email: [enquiries@bgs.ac.uk](mailto:enquiries@bgs.ac.uk)  
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BGS Geological Hazards Reports and general geological enquiries

## British Gypsum

British Gypsum Ltd  
East Leake  
Loughborough  
Leicestershire  
LE12 6HX



## The Coal Authority

200 Lichfield Lane  
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DX 716176 Mansfield 5  
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## Public Health England

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Public Health England, Wellington House  
133-155 Waterloo Road, London, SE1 8UG  
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Email: [enquiries@phe.gov.uk](mailto:enquiries@phe.gov.uk)  
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## Johnson Poole & Bloomer Limited

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Website: [www.jpb.co.uk](http://www.jpb.co.uk)



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## Getmapping PLC

Virginia Villas, High Street, Hartley Witney,  
Hampshire RG27 8NW  
Tel: 01252 845444  
Website: <http://www1.getmapping.com/>



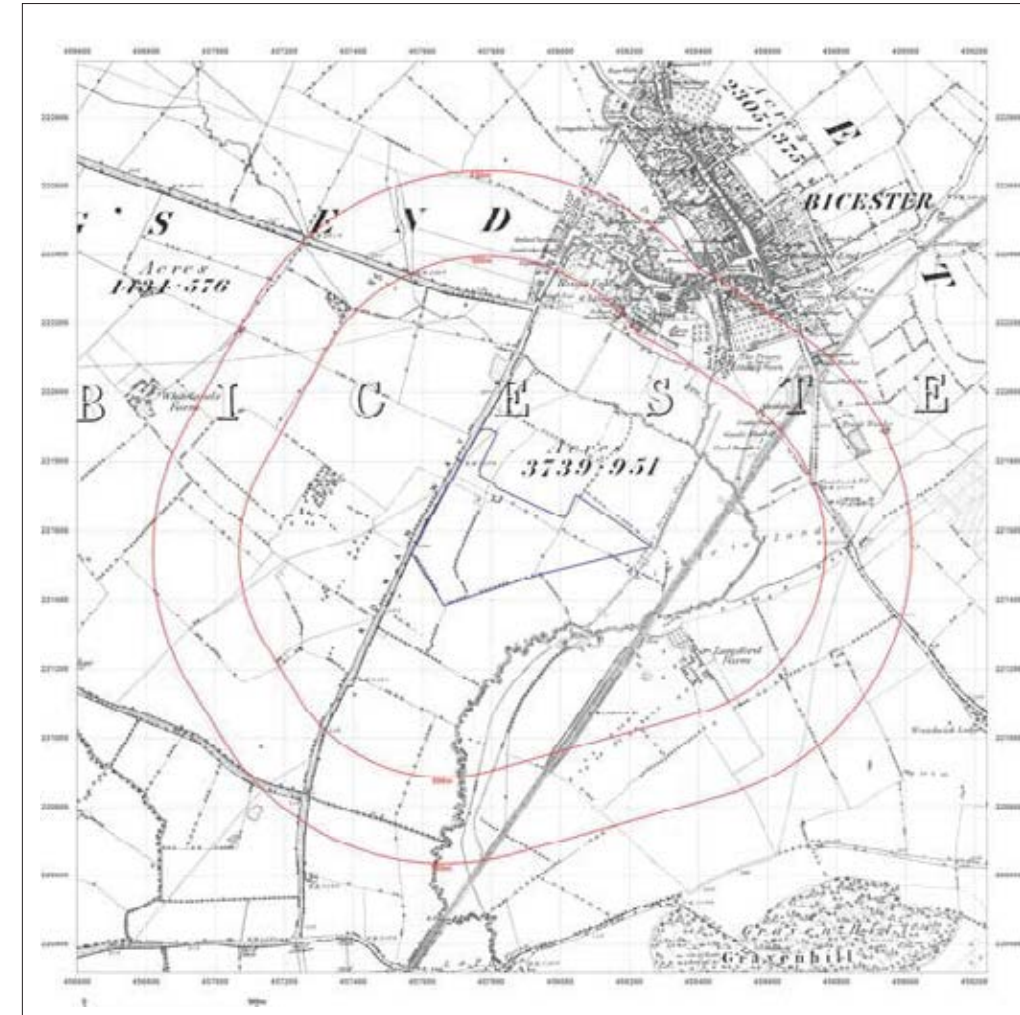
Peter Brett Associates  
Caversham Bridge House  
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Tel: +44 (0)118 950 0761 E-mail: [reading@pba.co.uk](mailto:reading@pba.co.uk)  
Website: <http://www.peterbrett.com/home>



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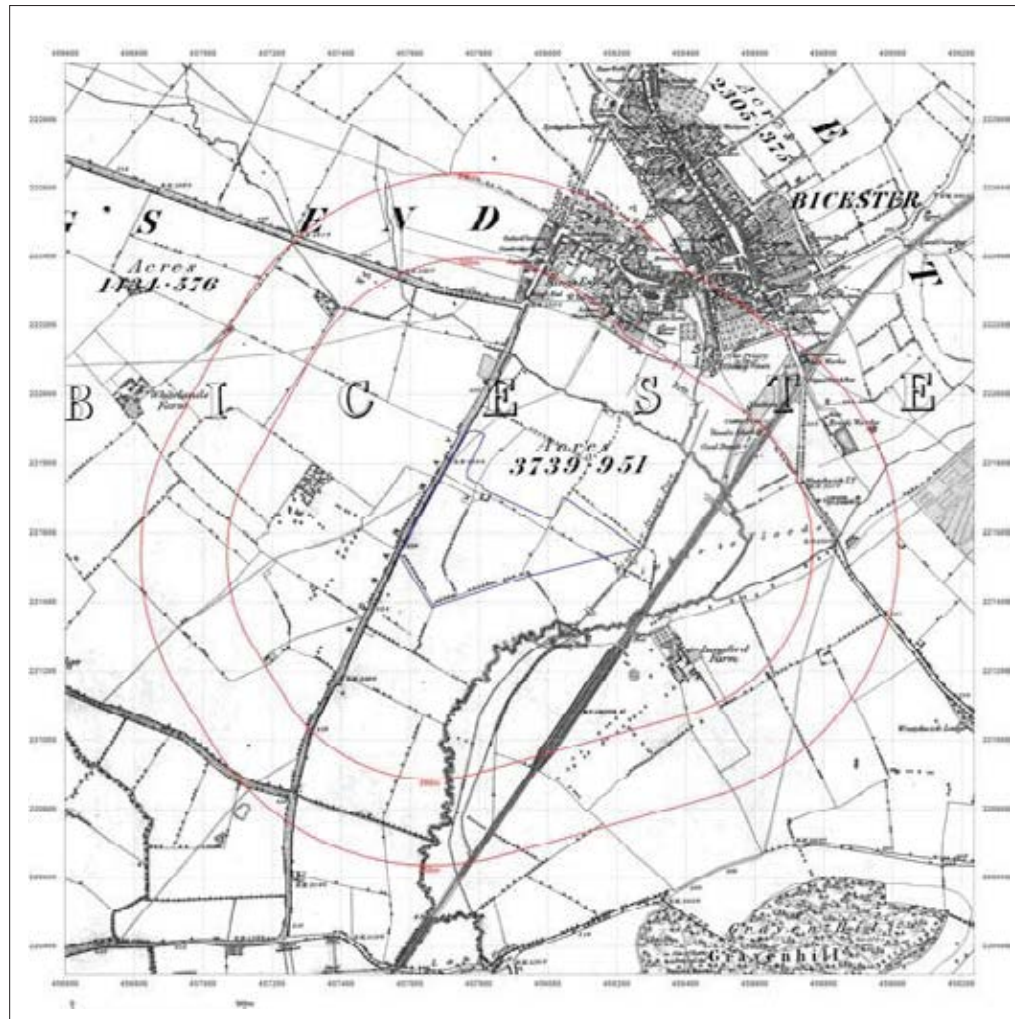


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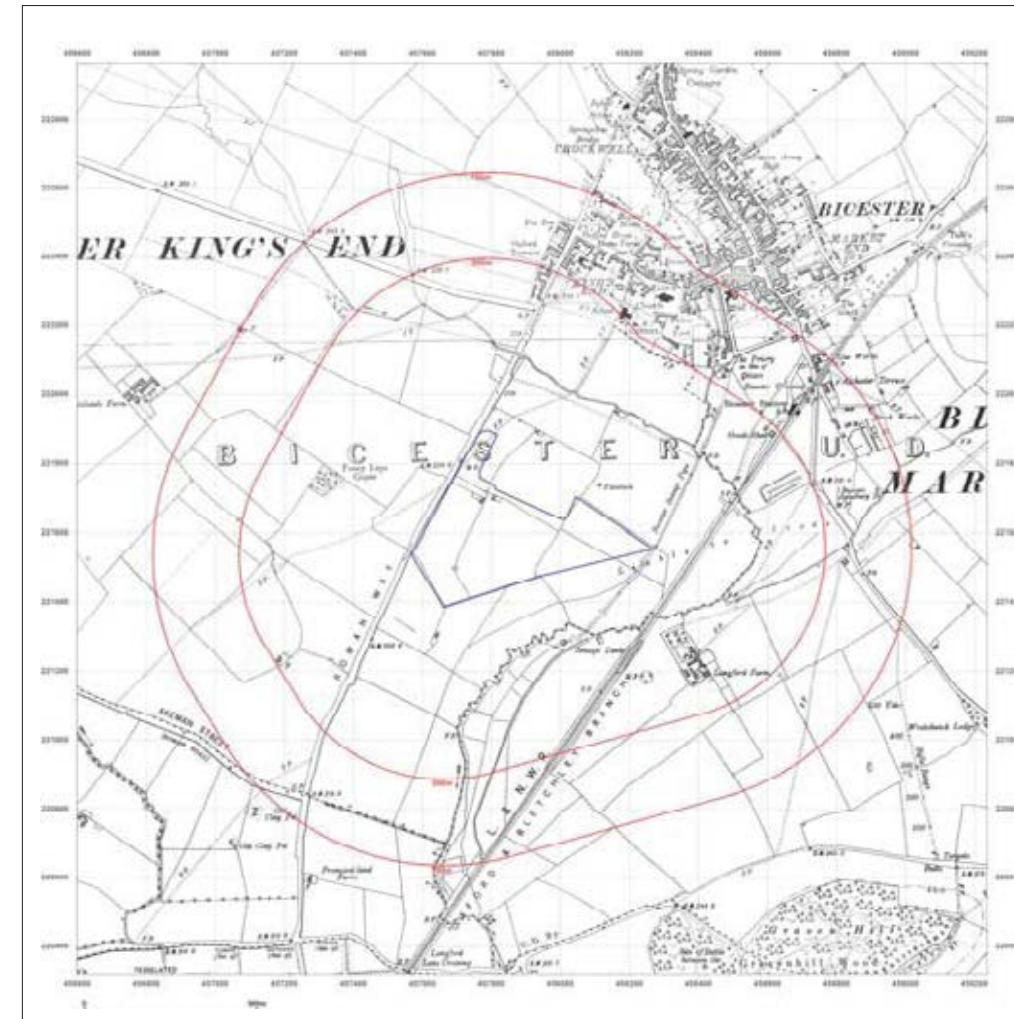
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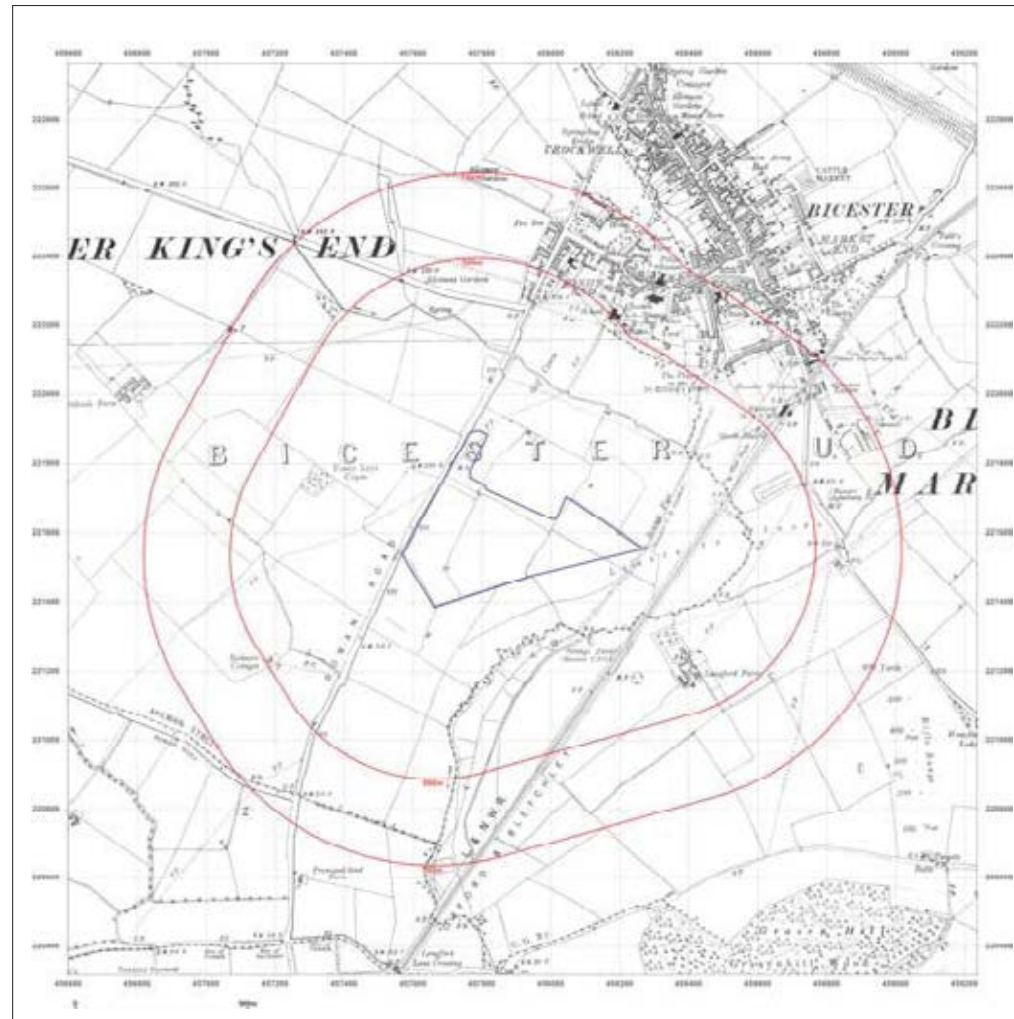
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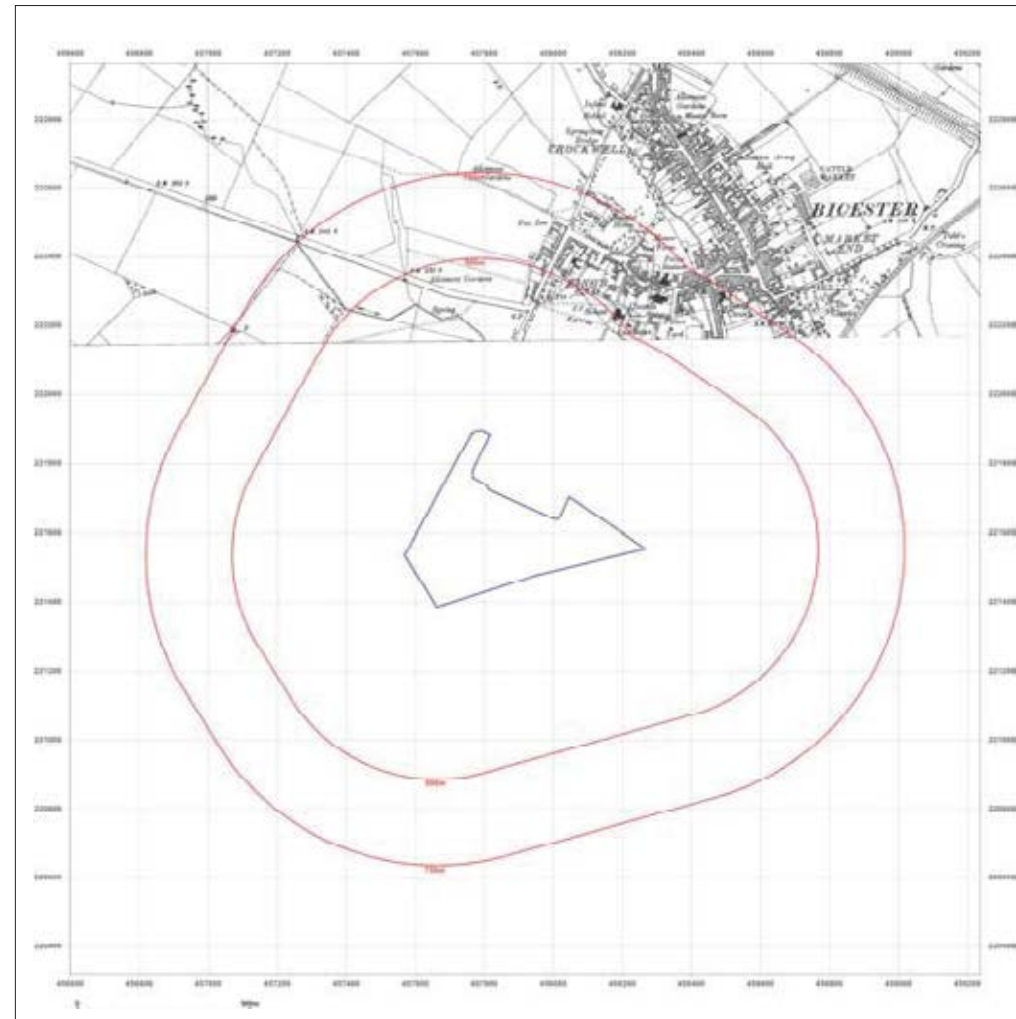
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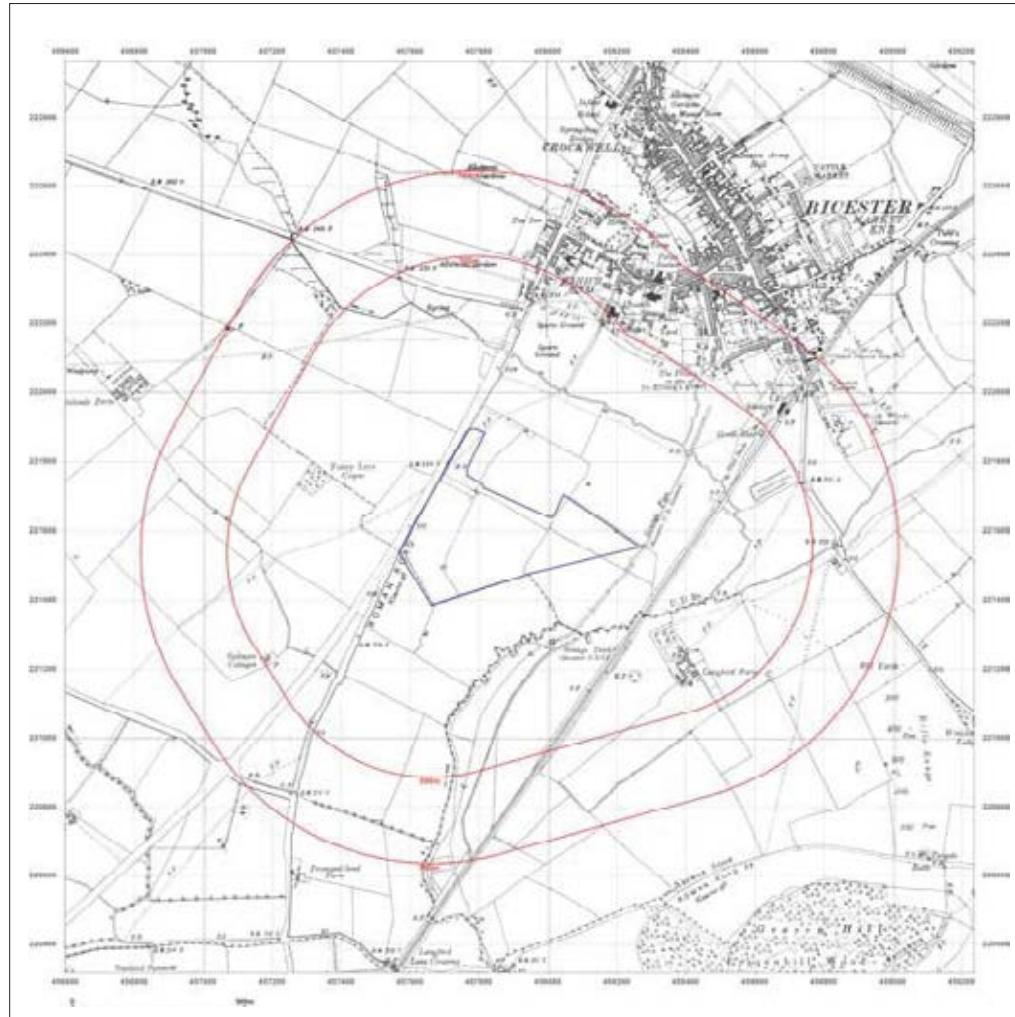
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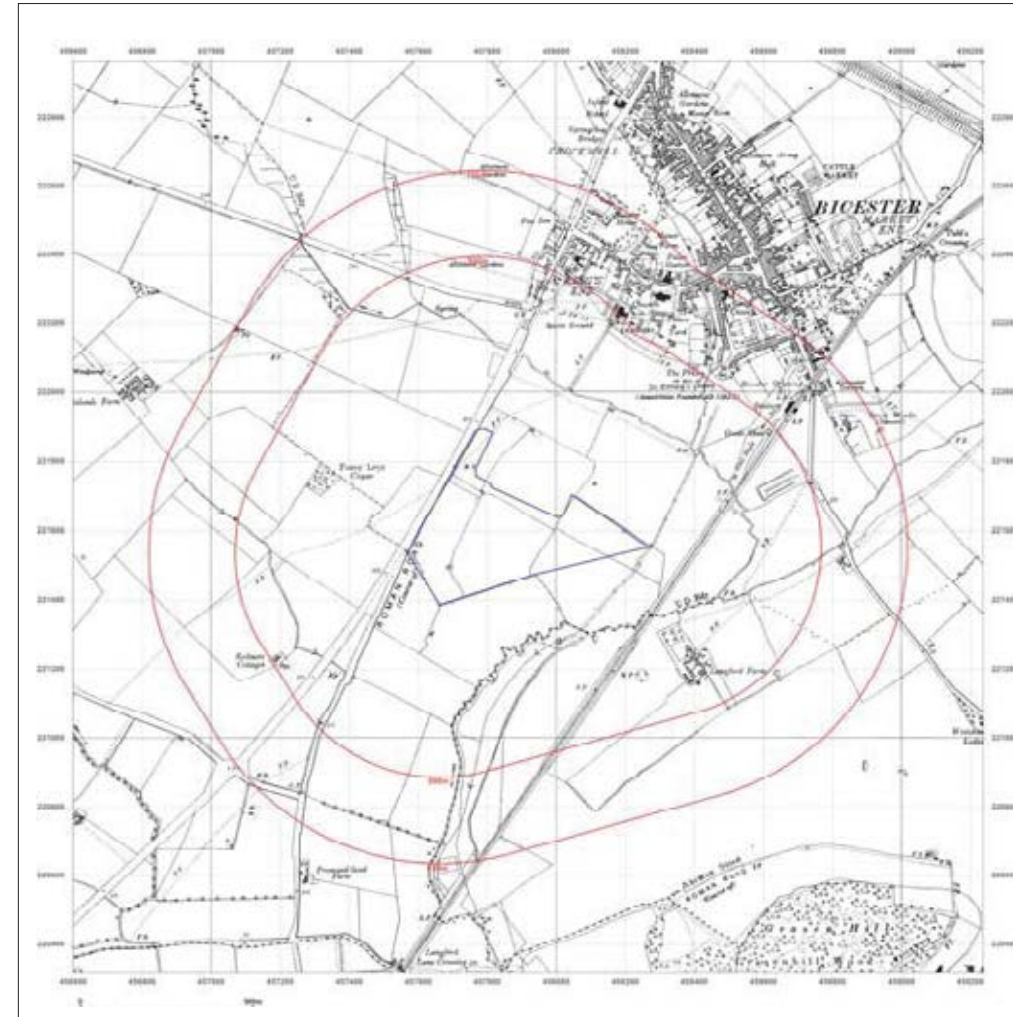


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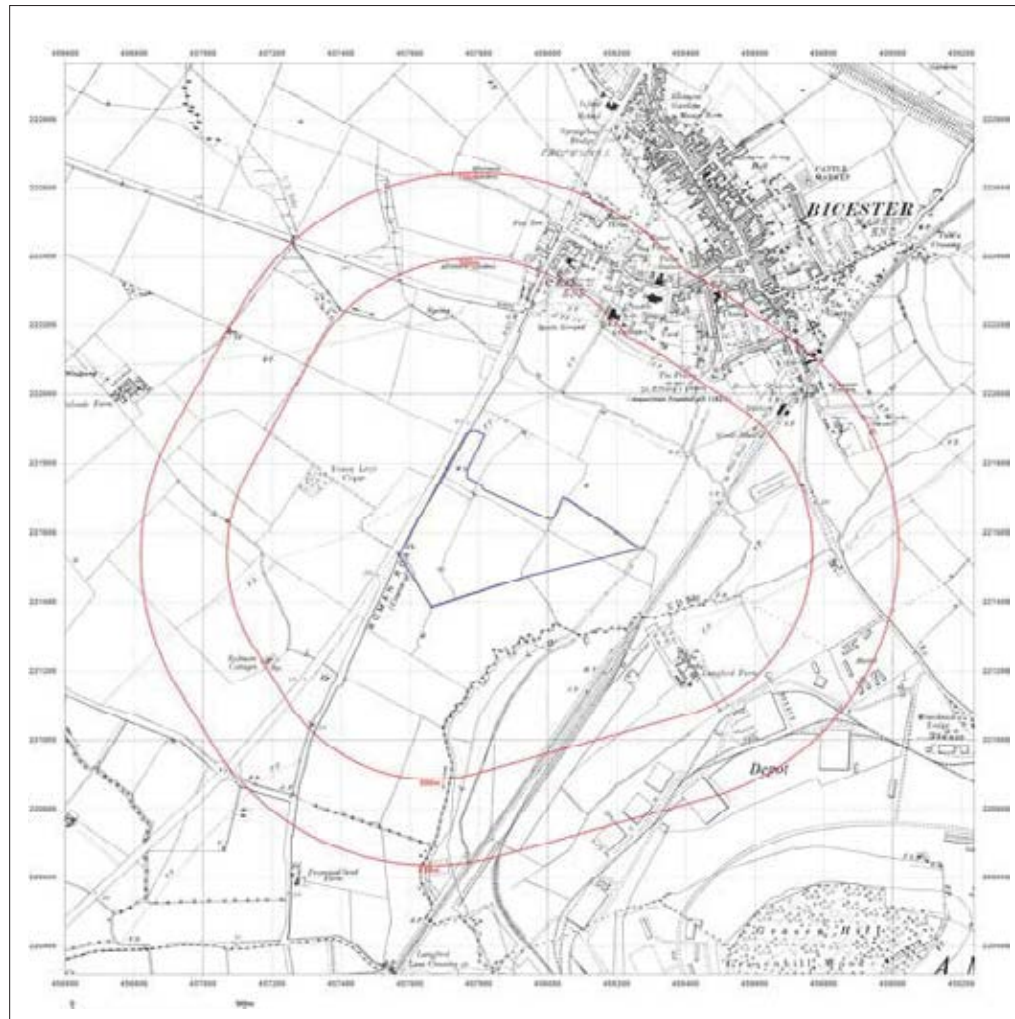


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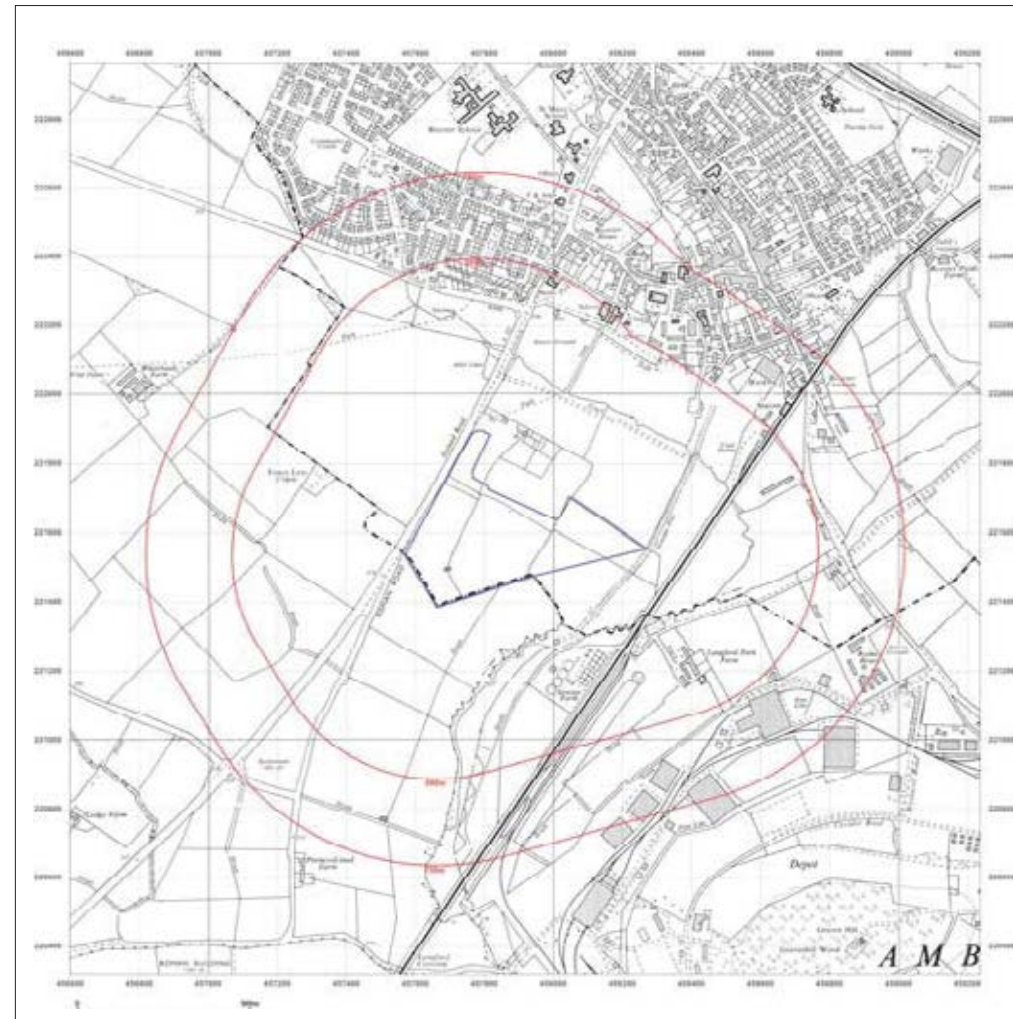
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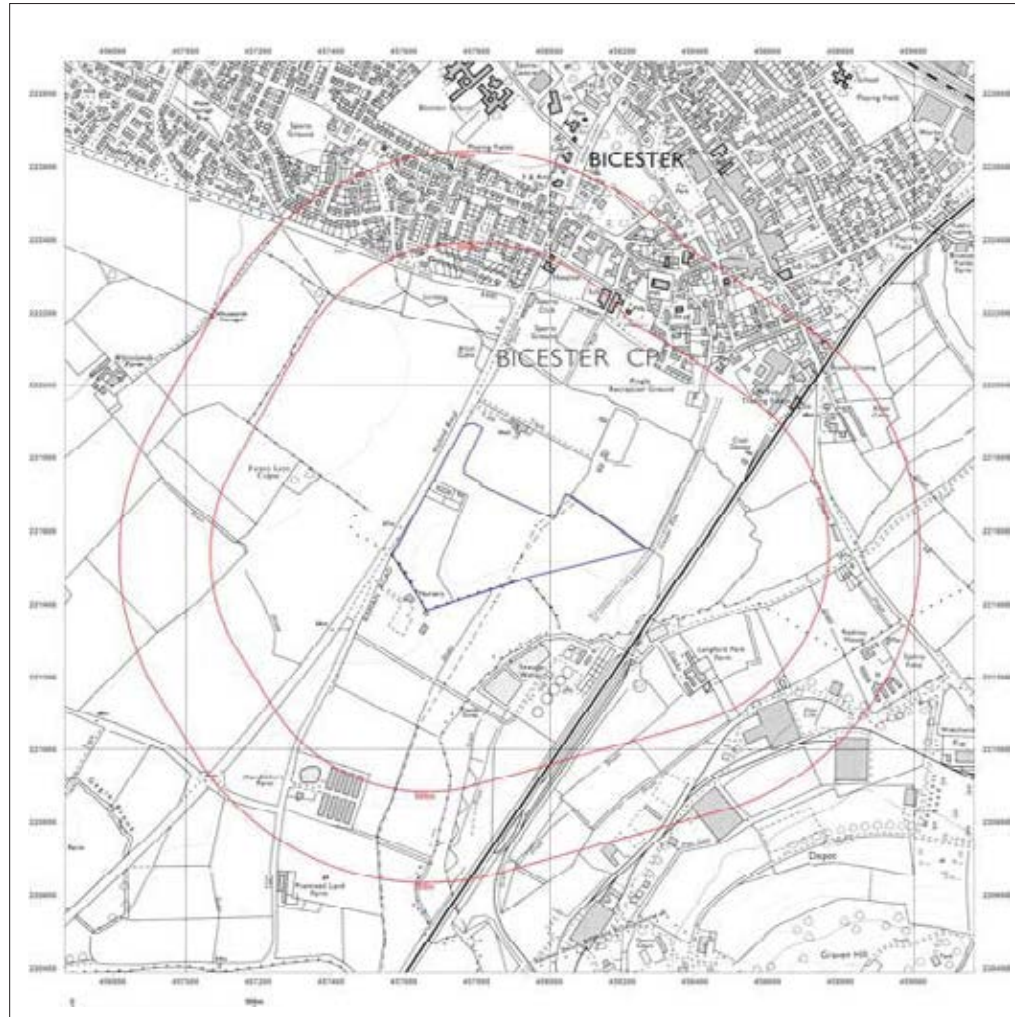
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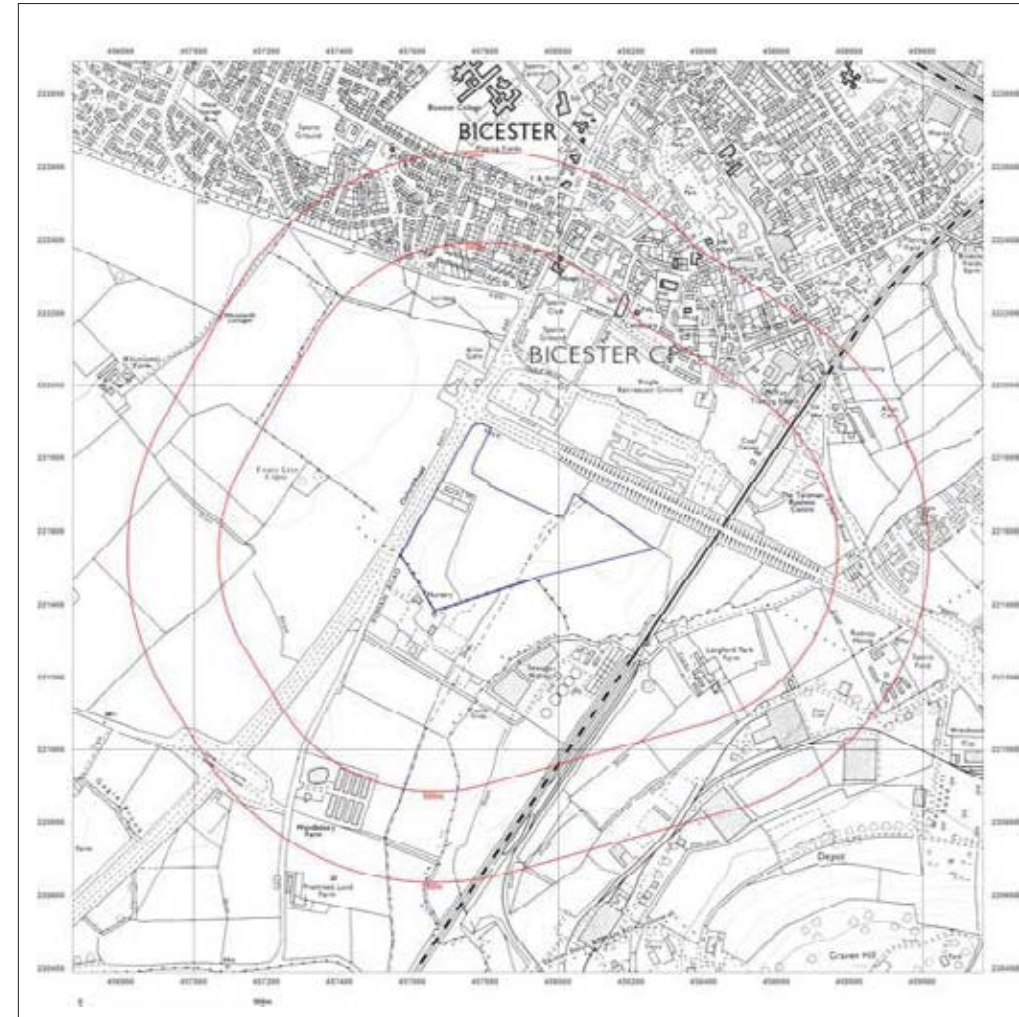


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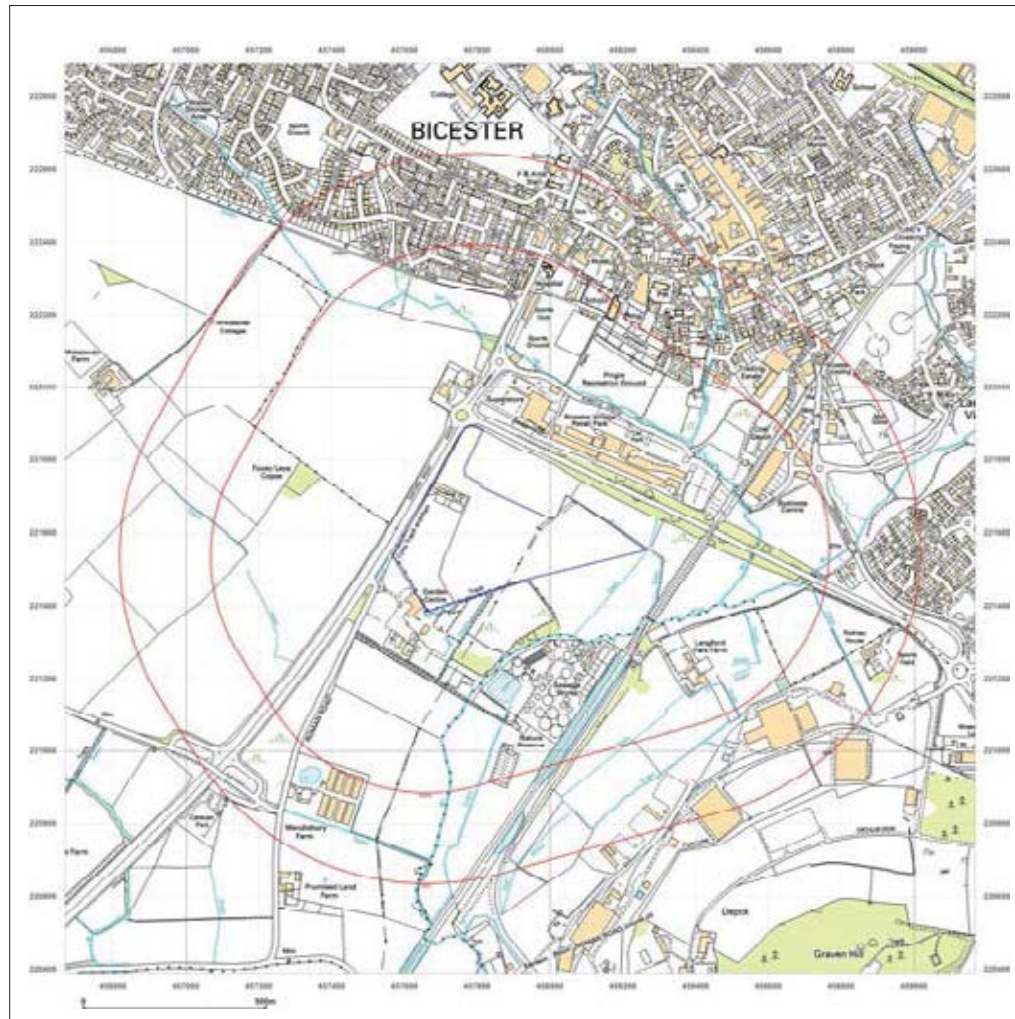


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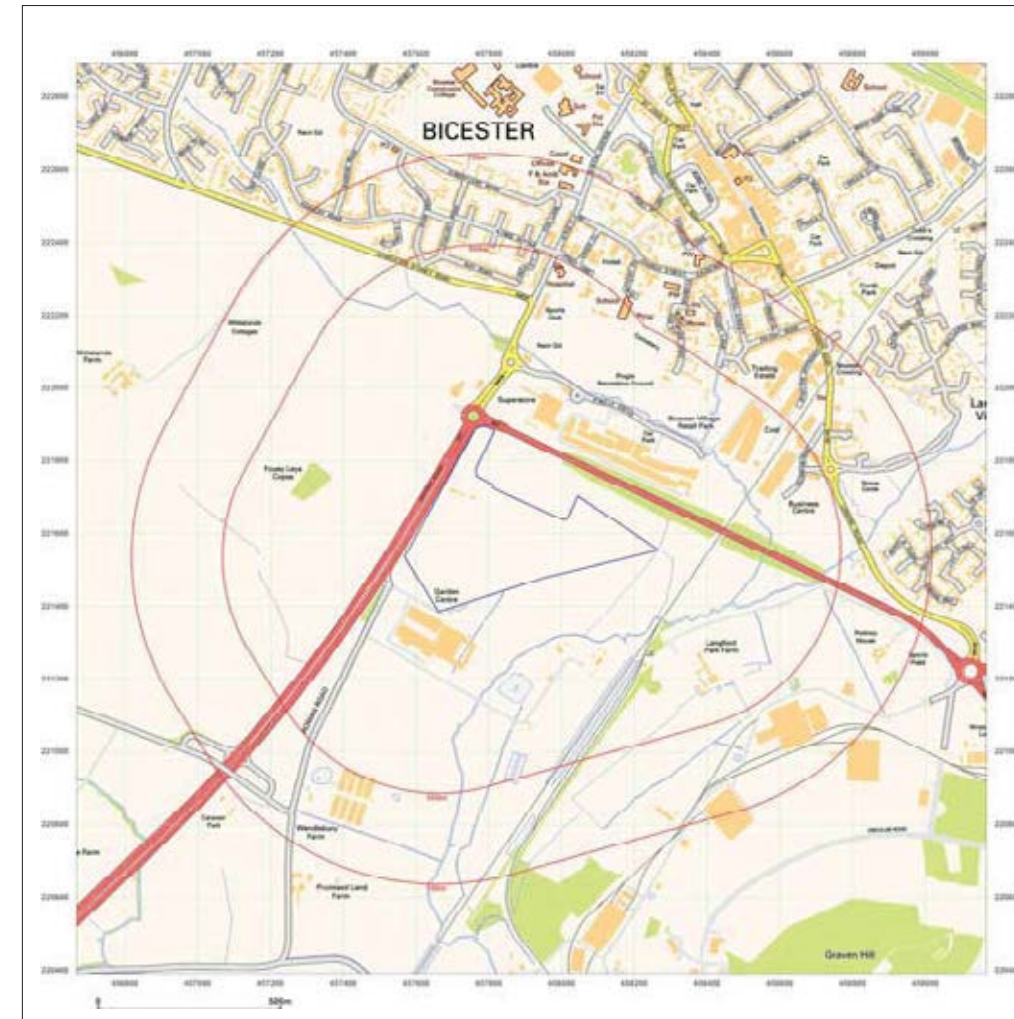


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 Grid Ref: 457917, 221640

Map Name: National Grid  
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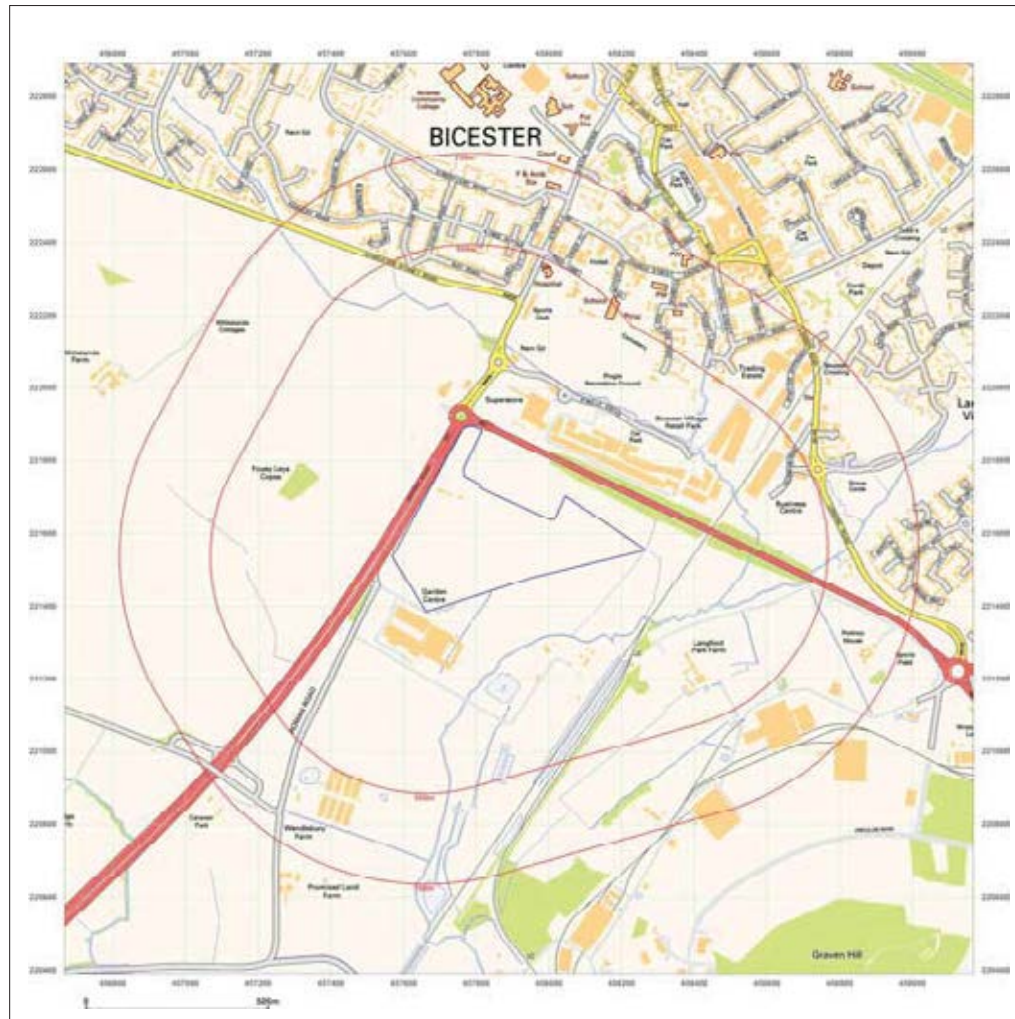
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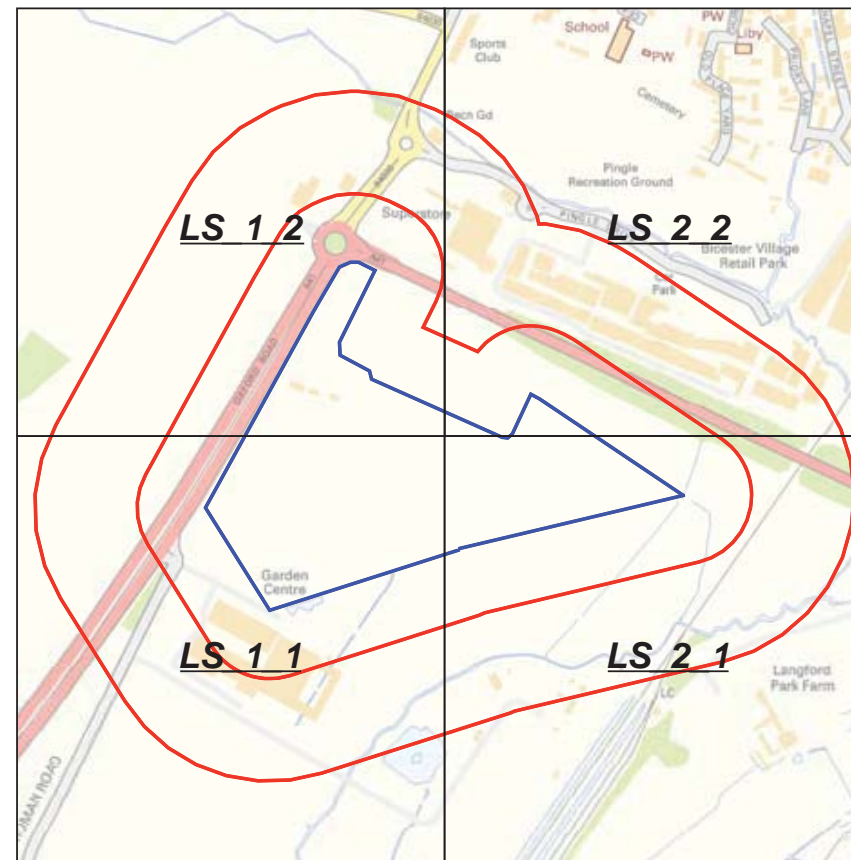
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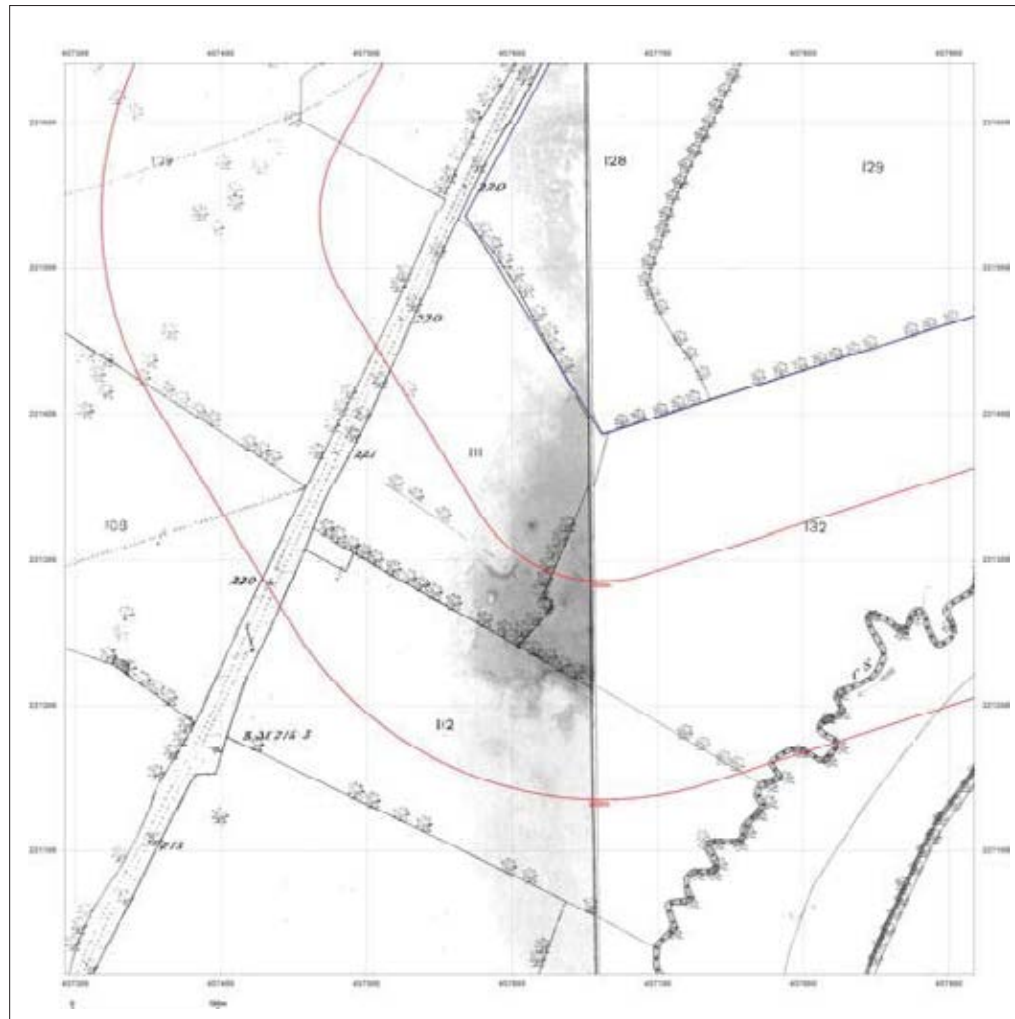
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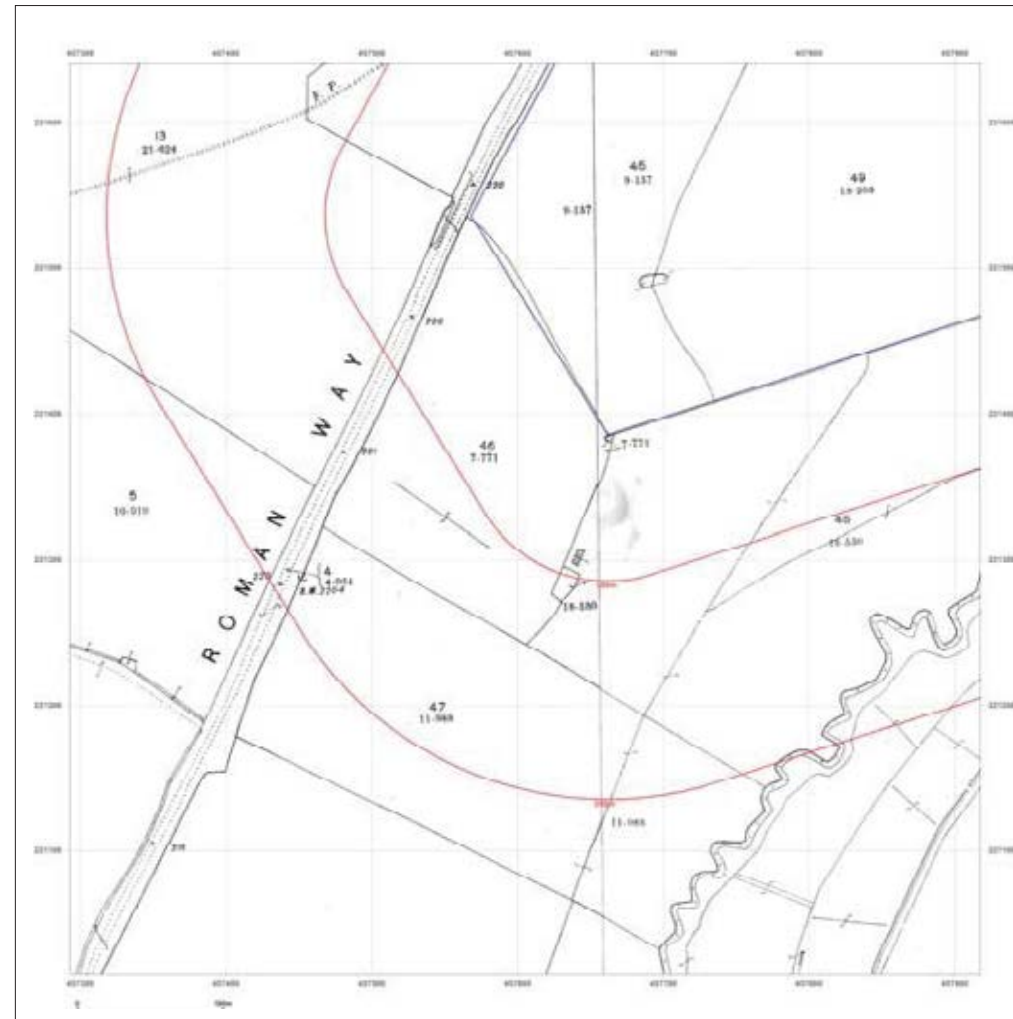
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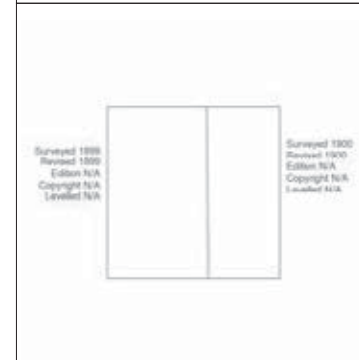
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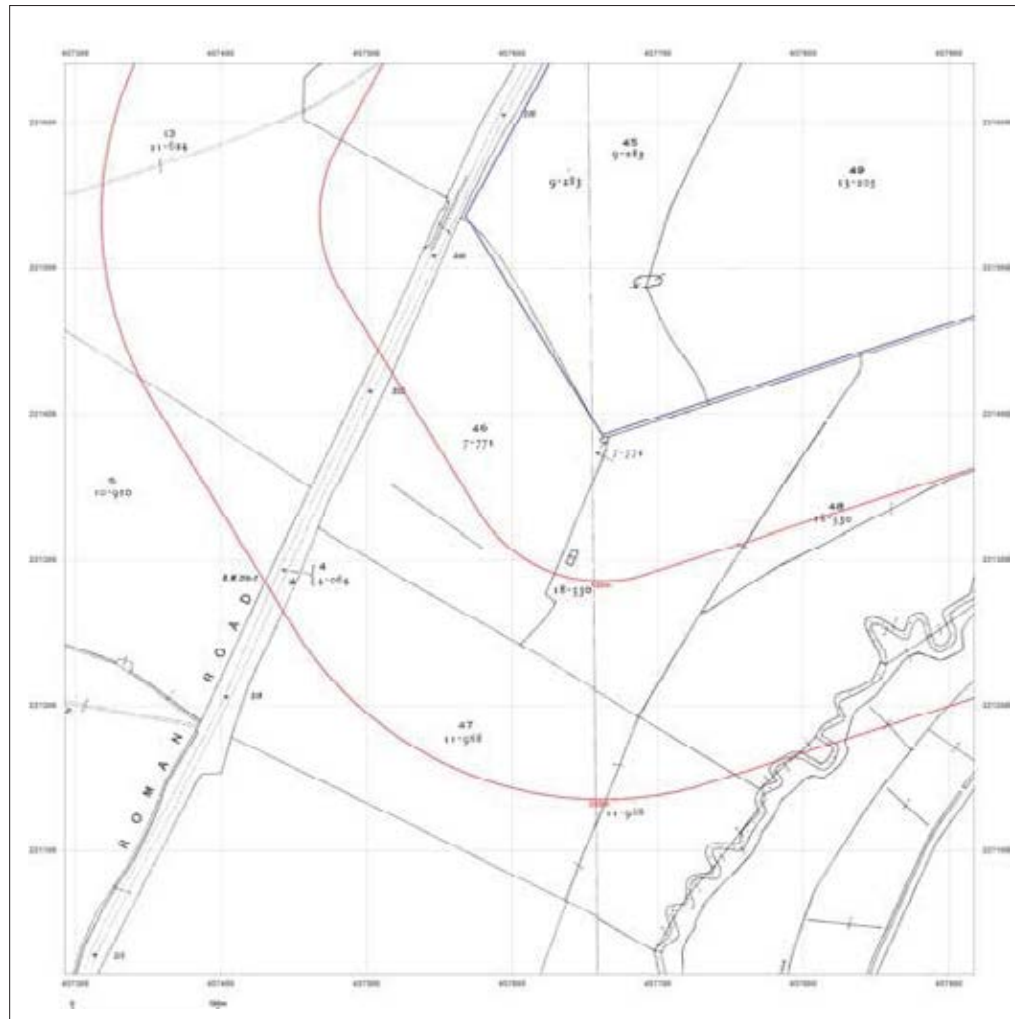
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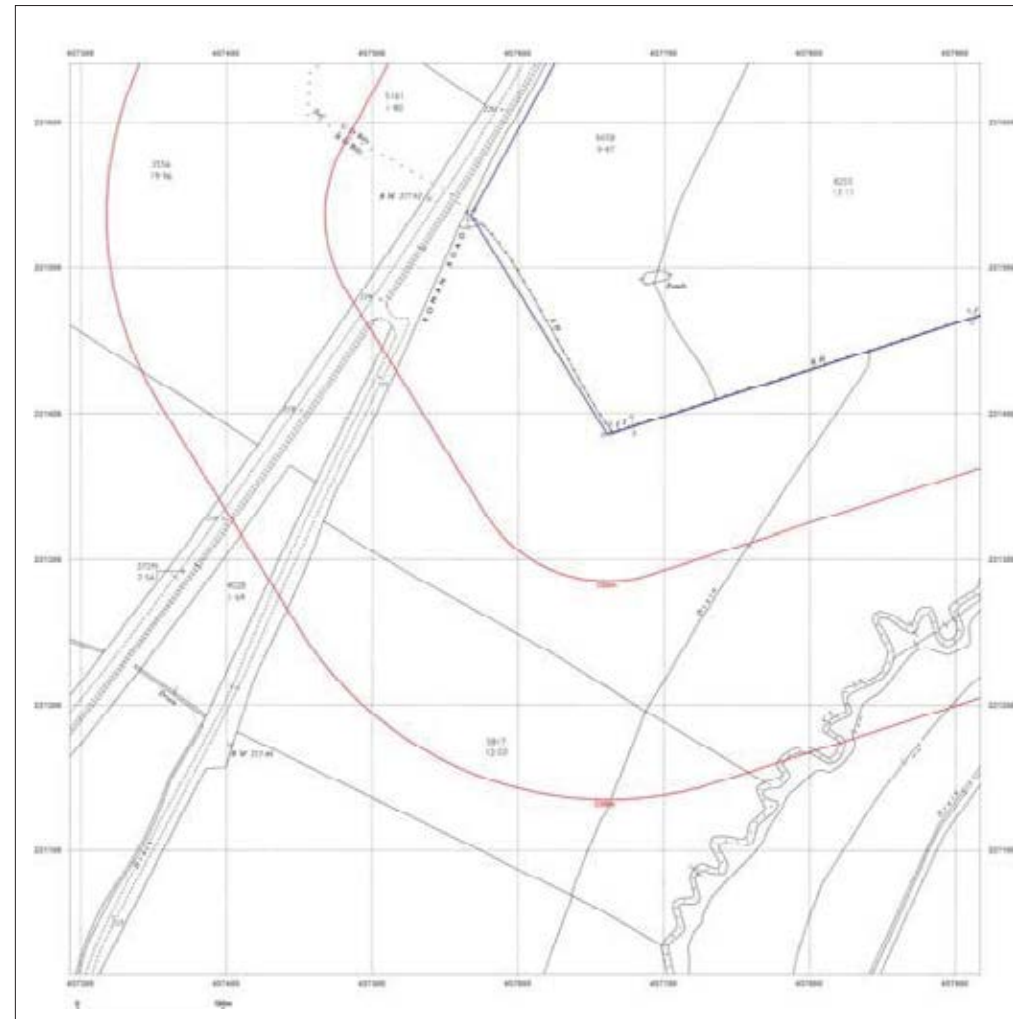
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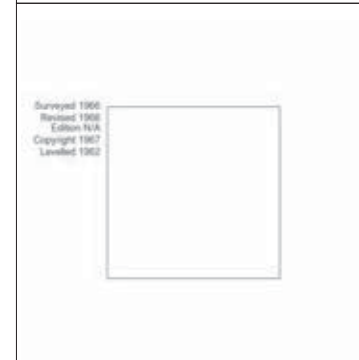
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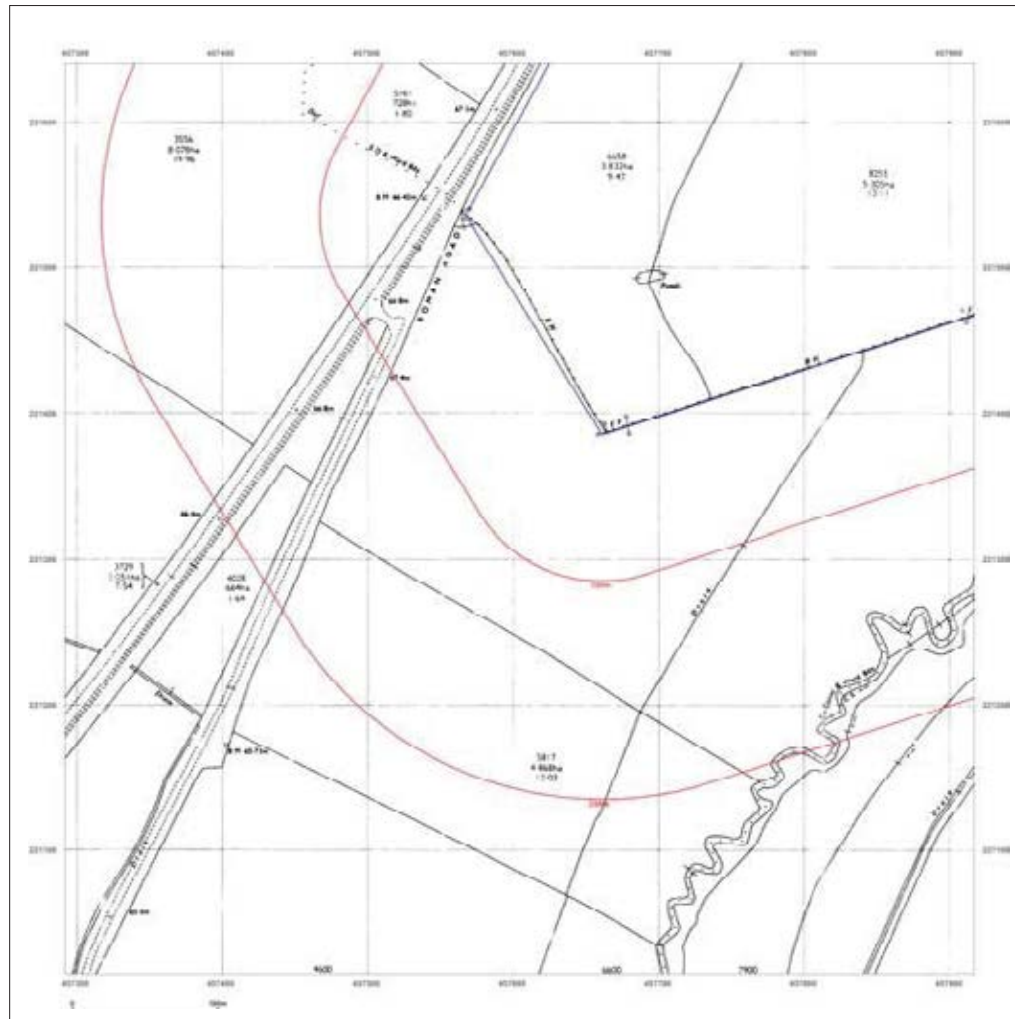
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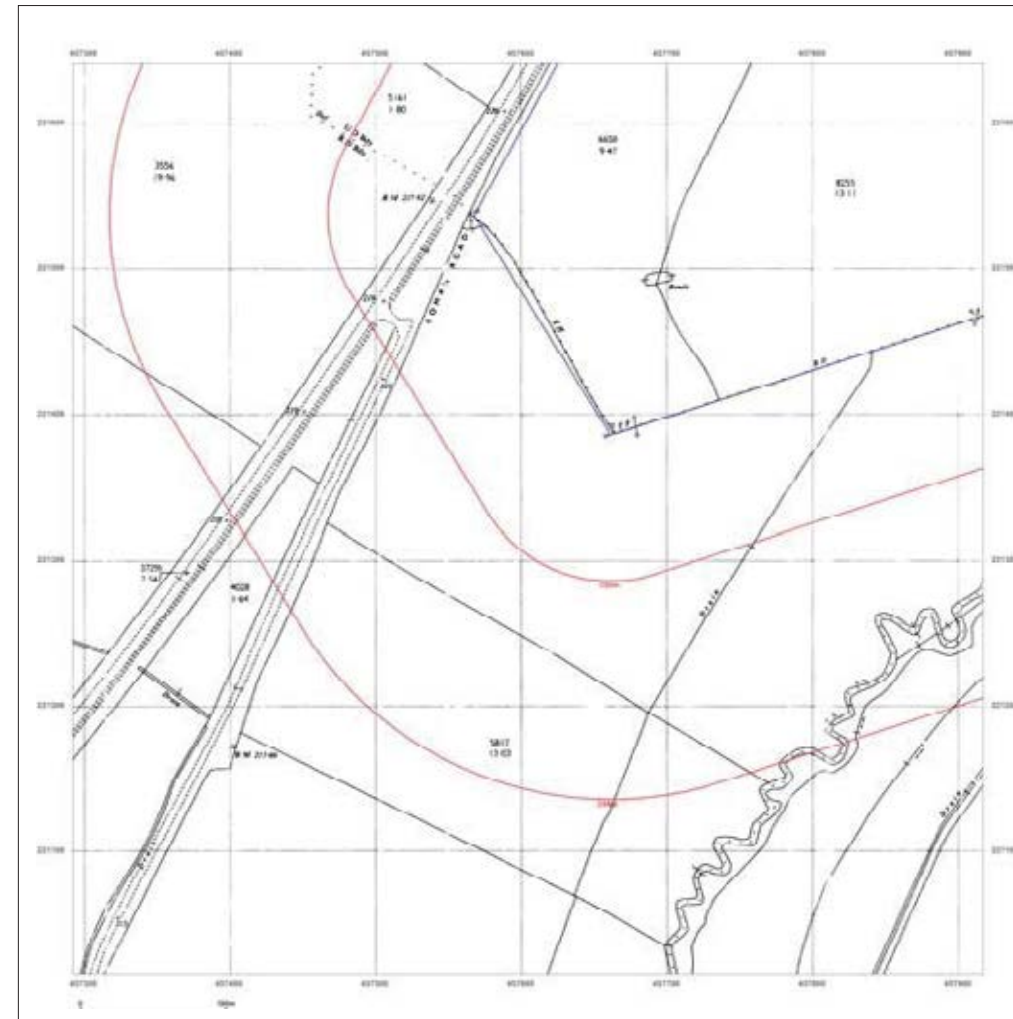


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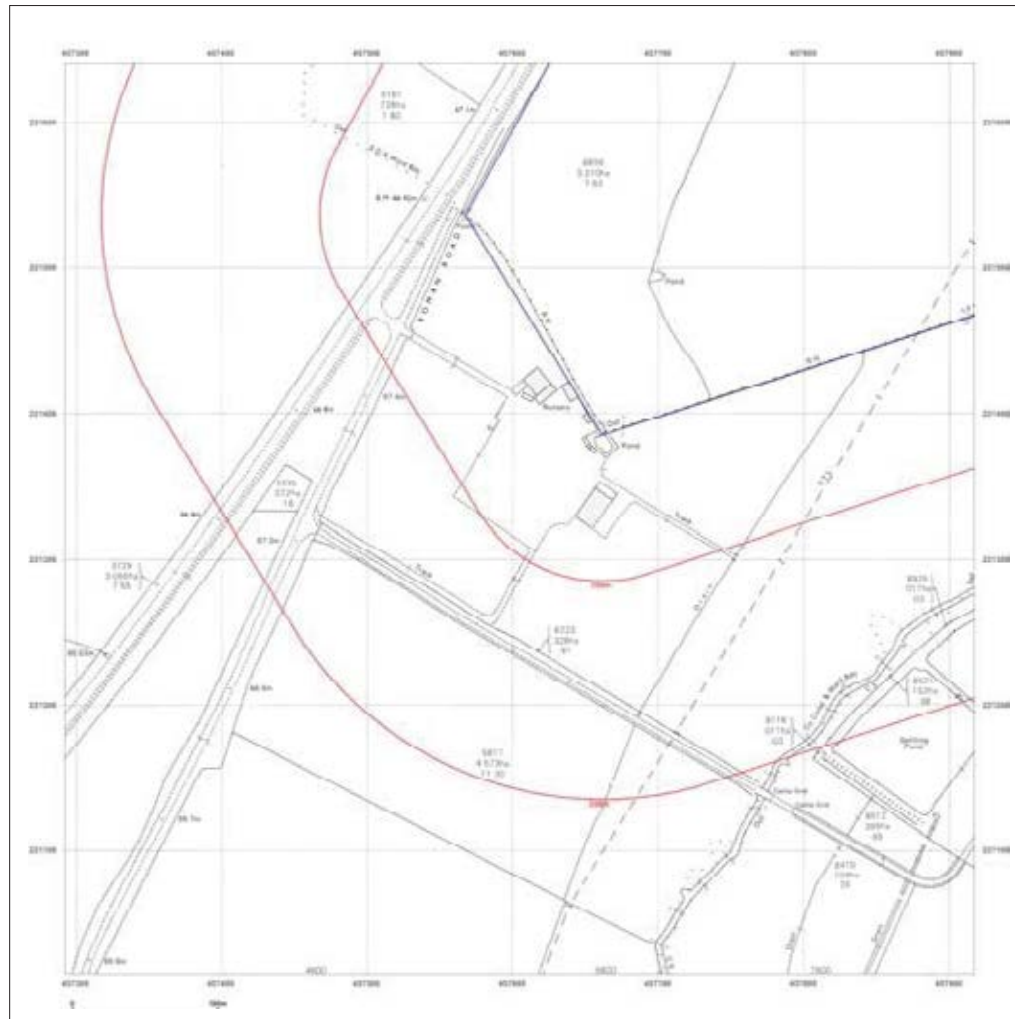


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Grid Ref: 457605, 221328

Map Name: National Grid

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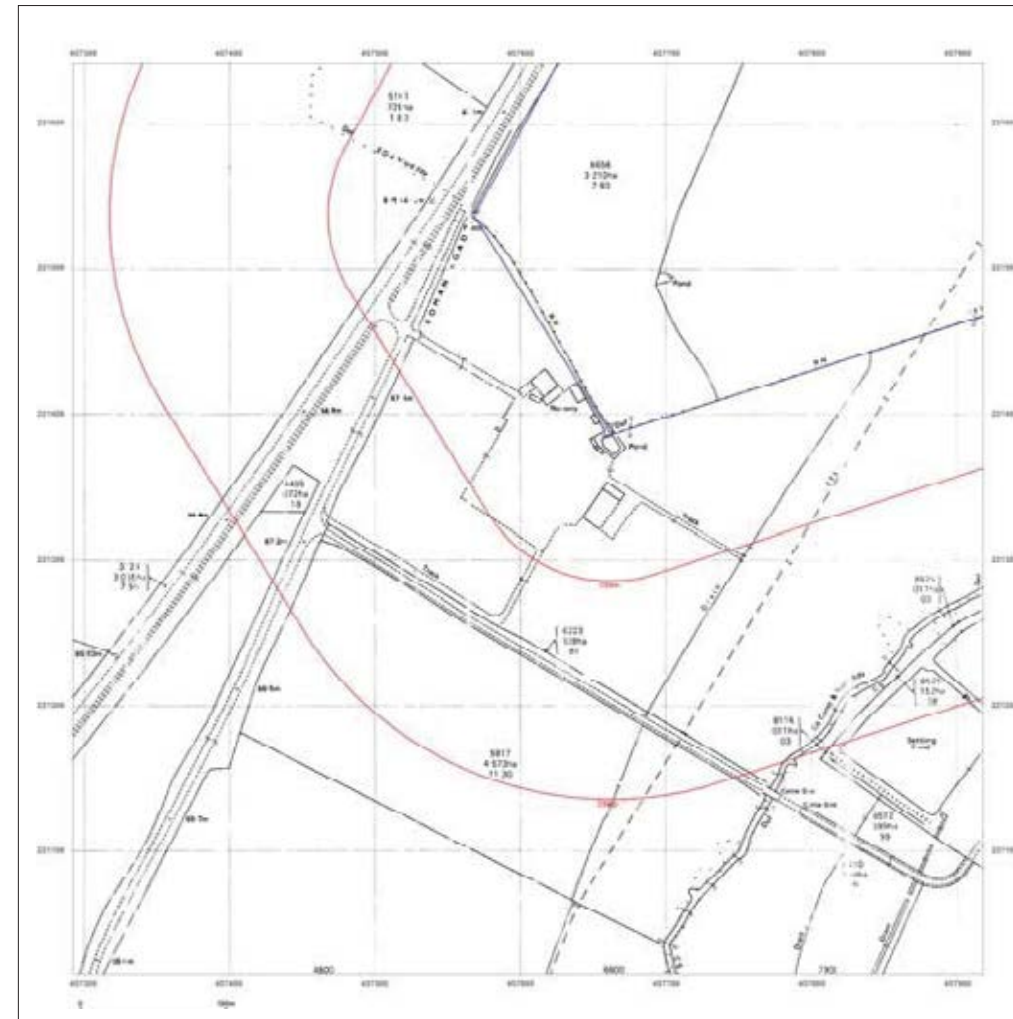


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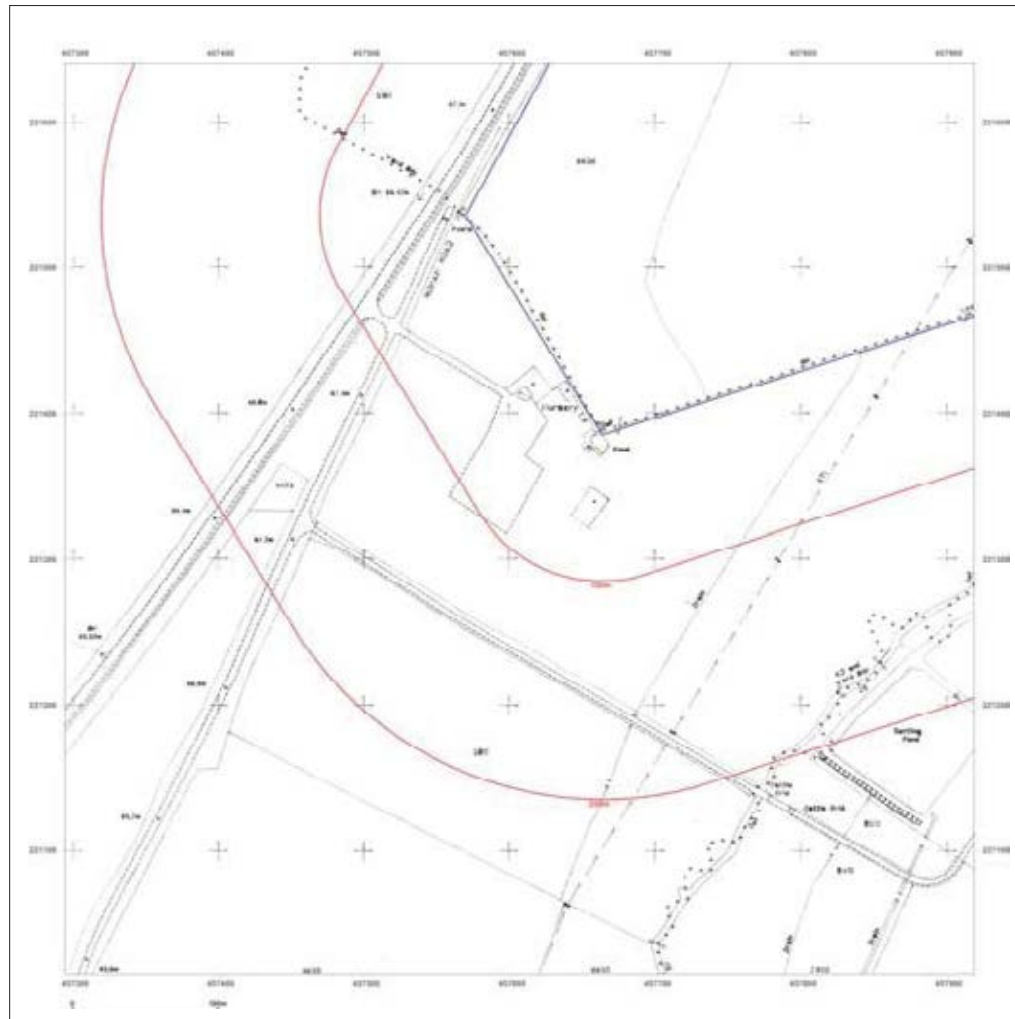


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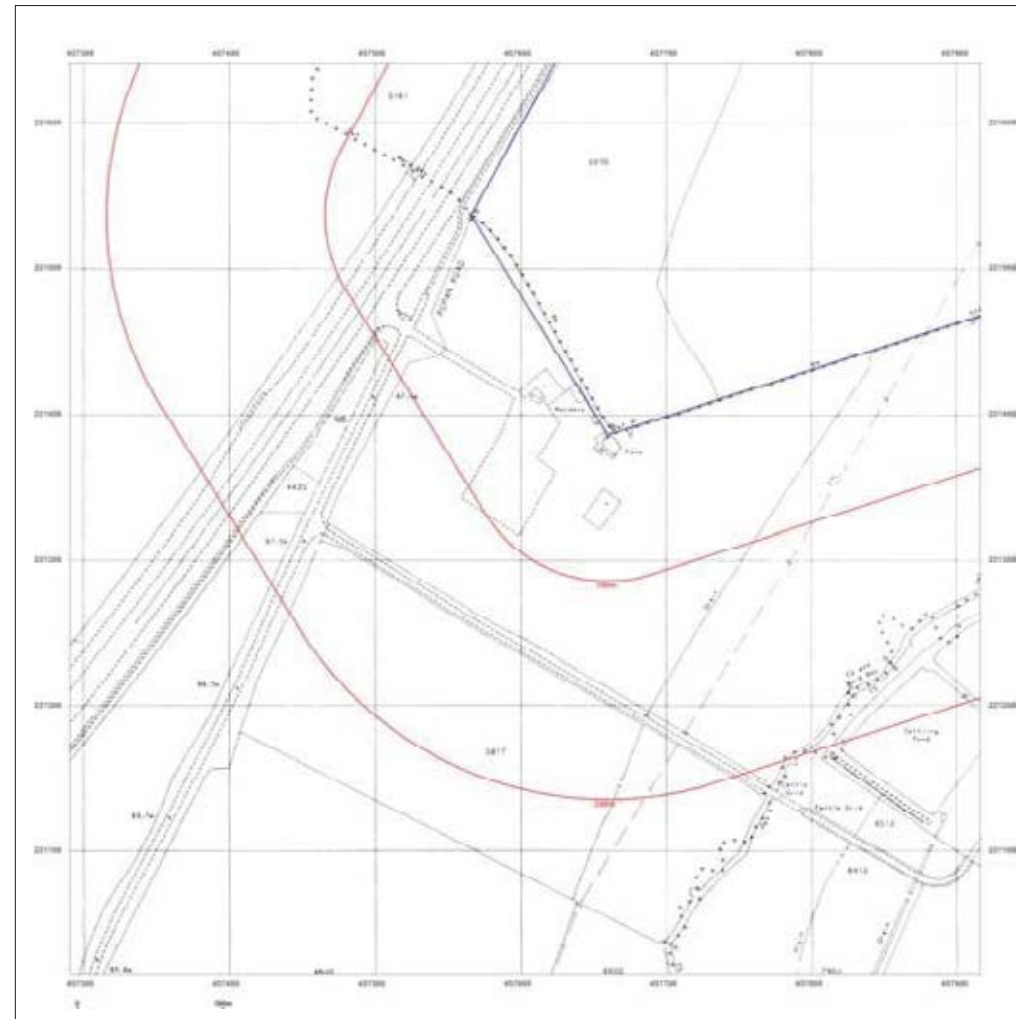
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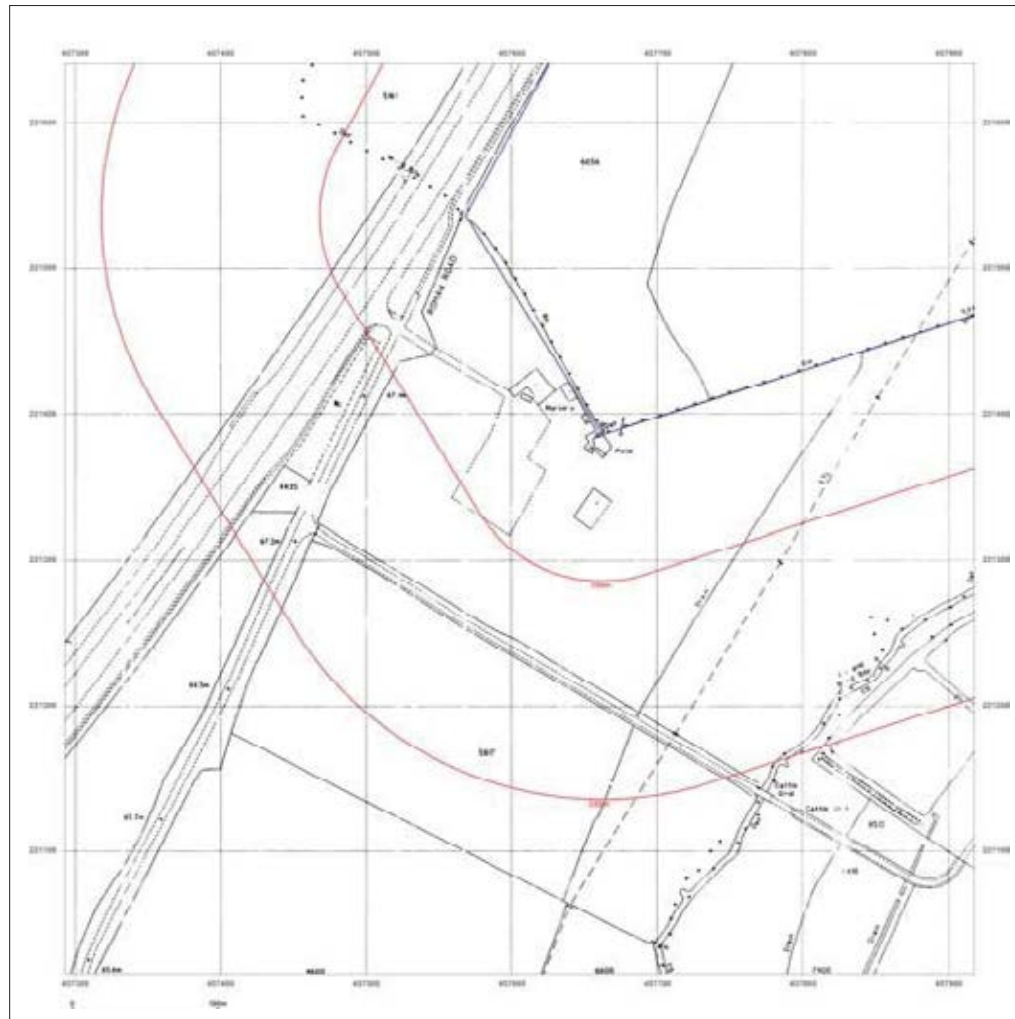
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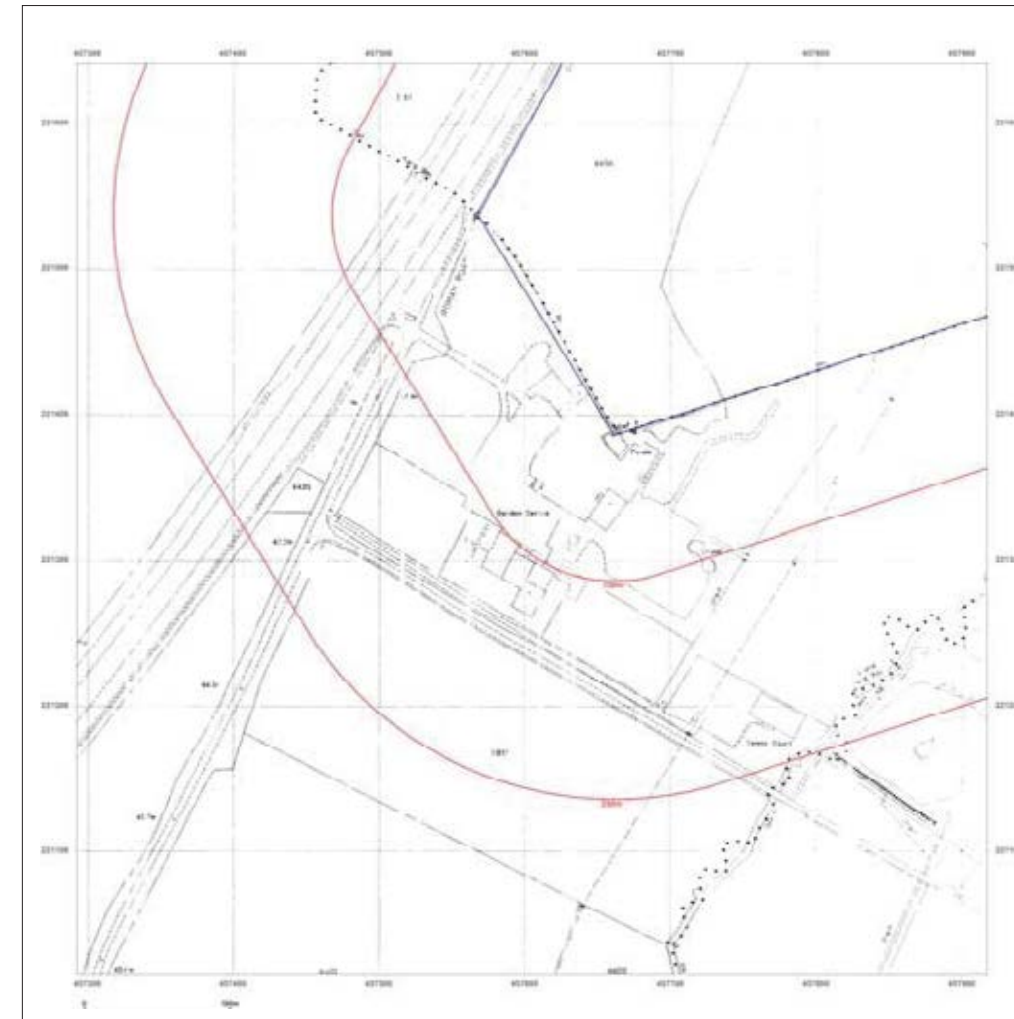


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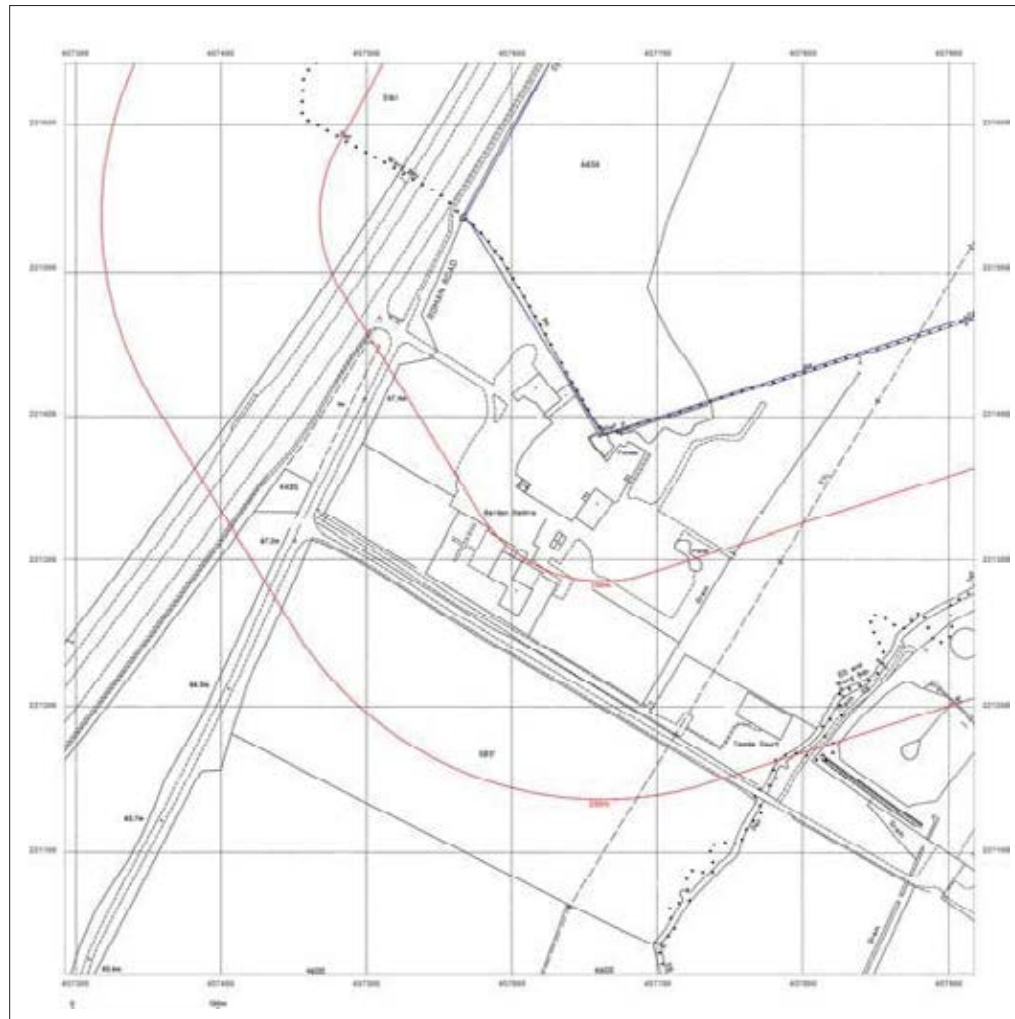


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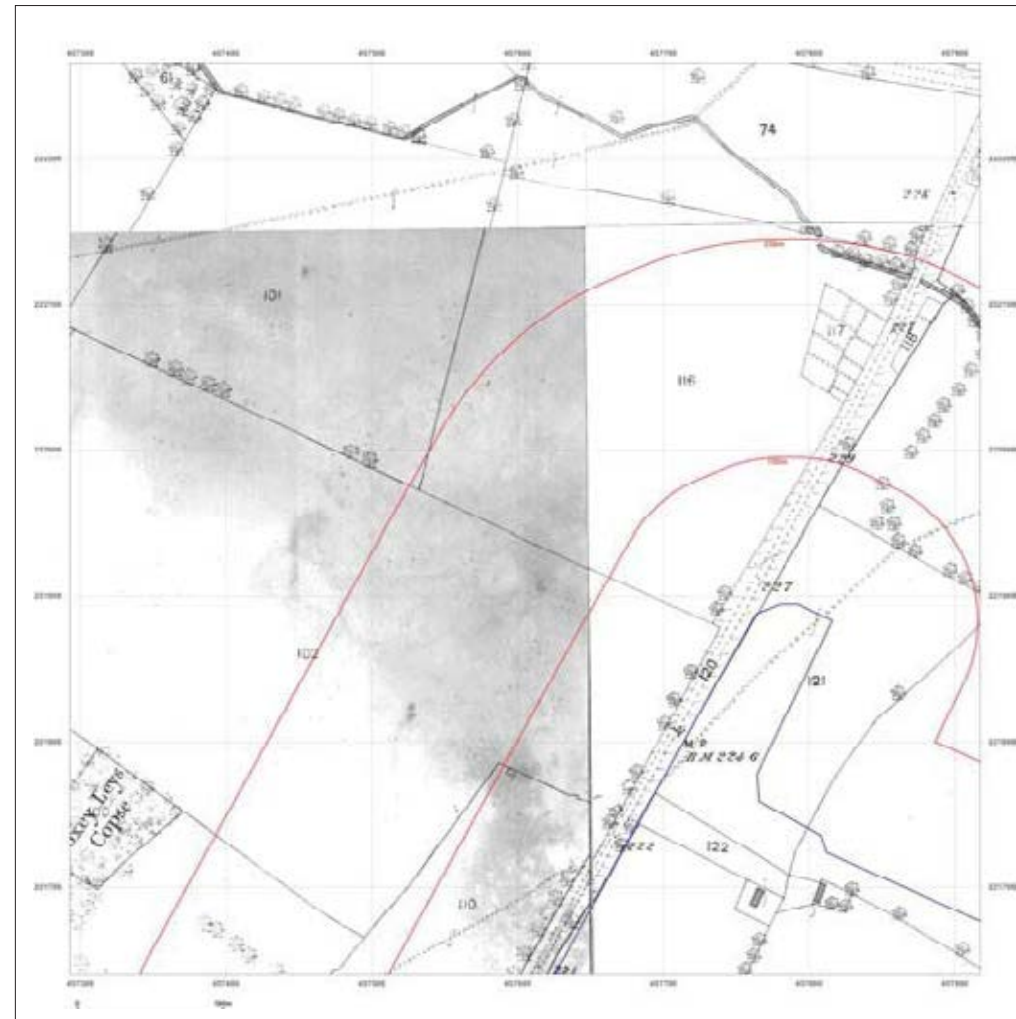


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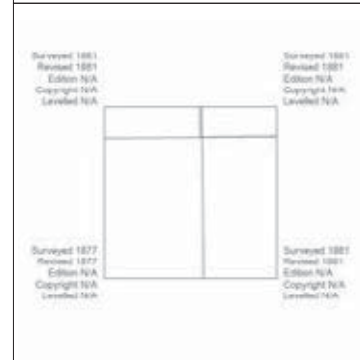
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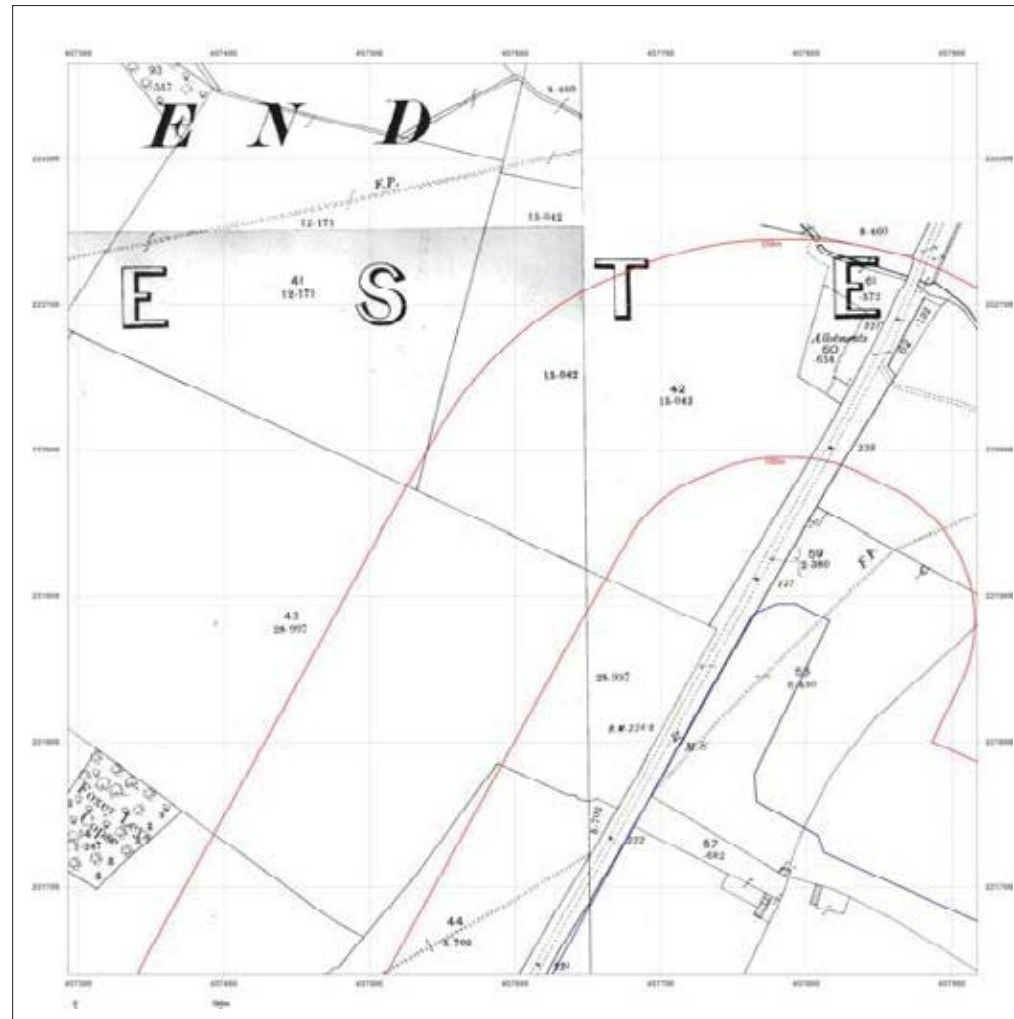
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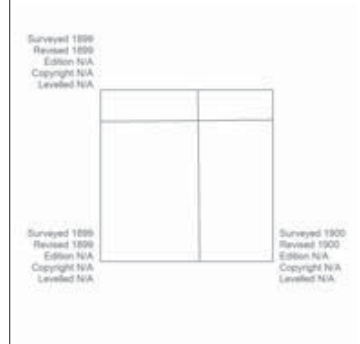
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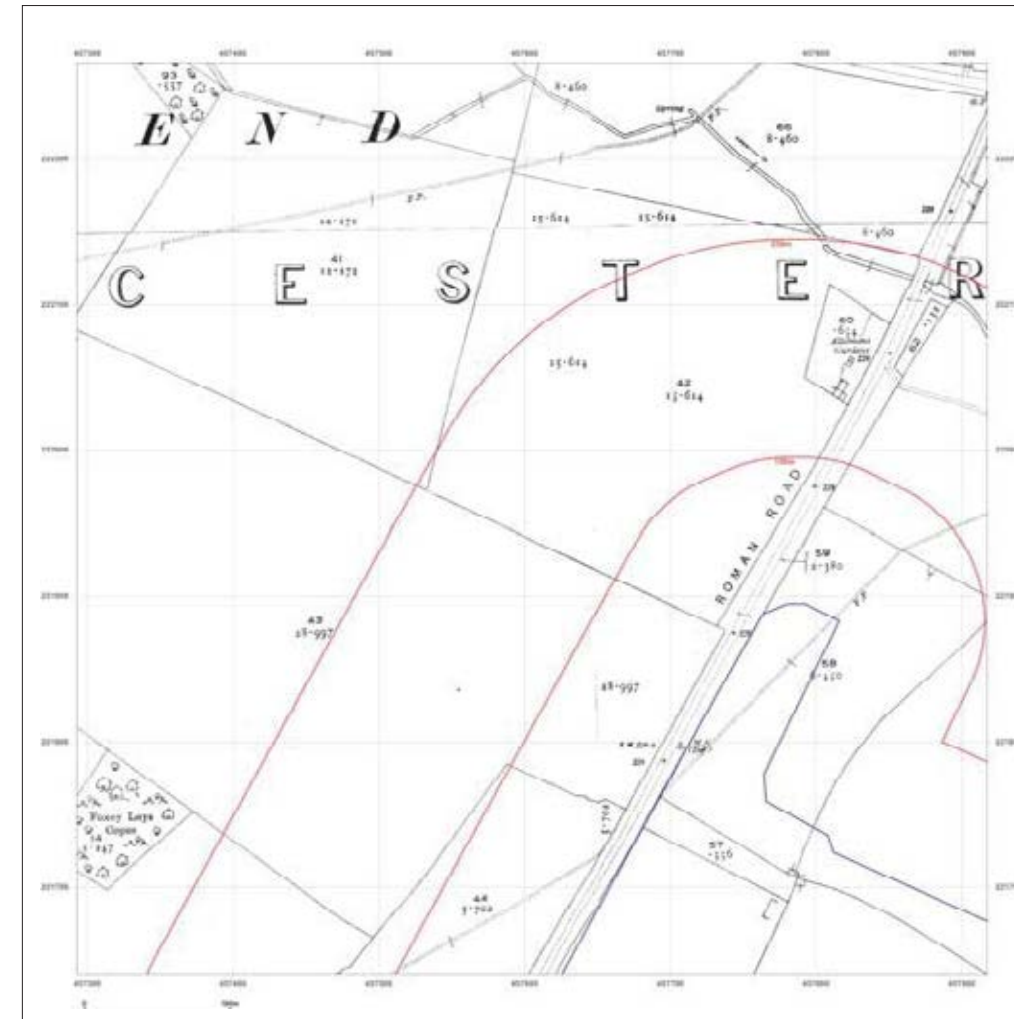


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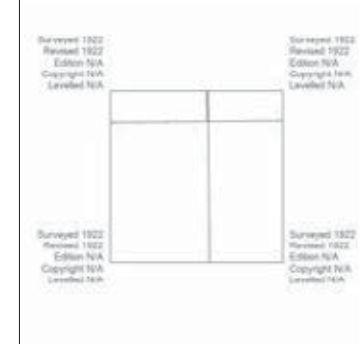
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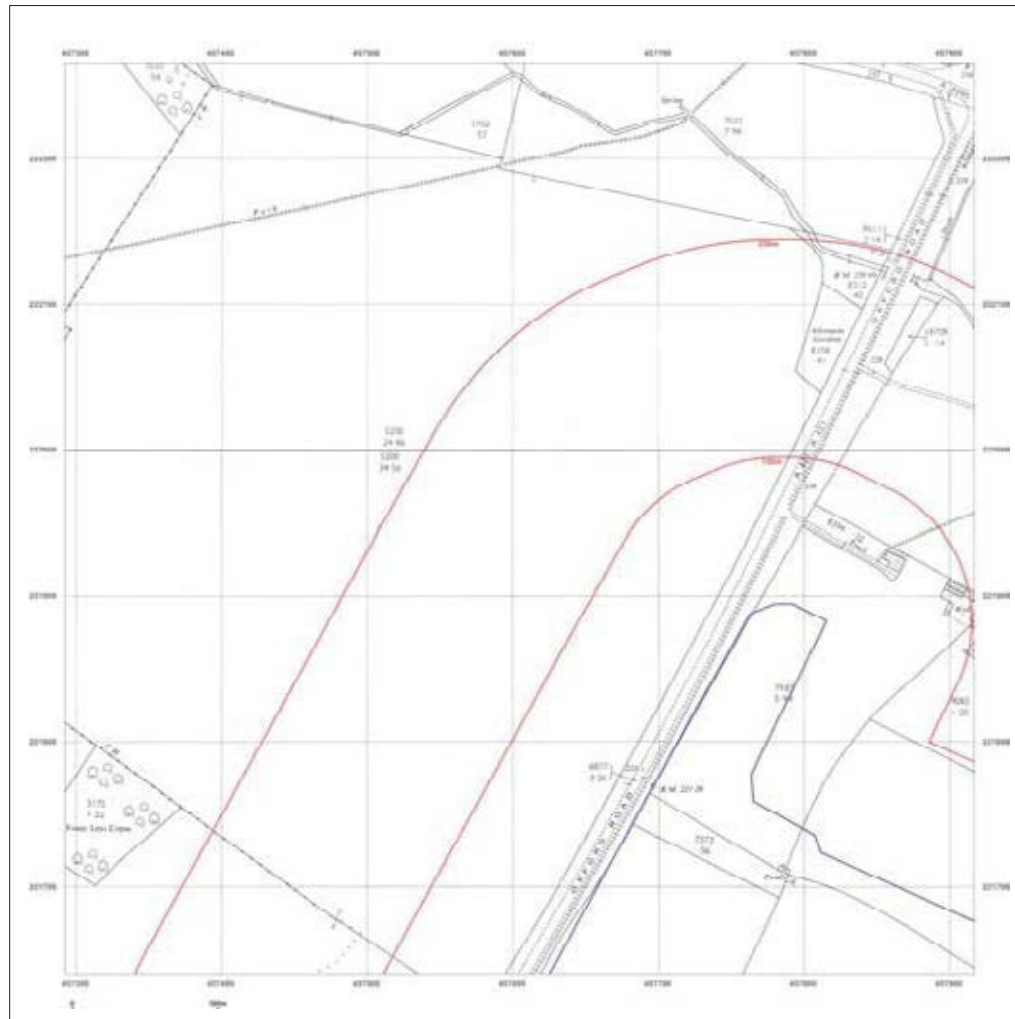


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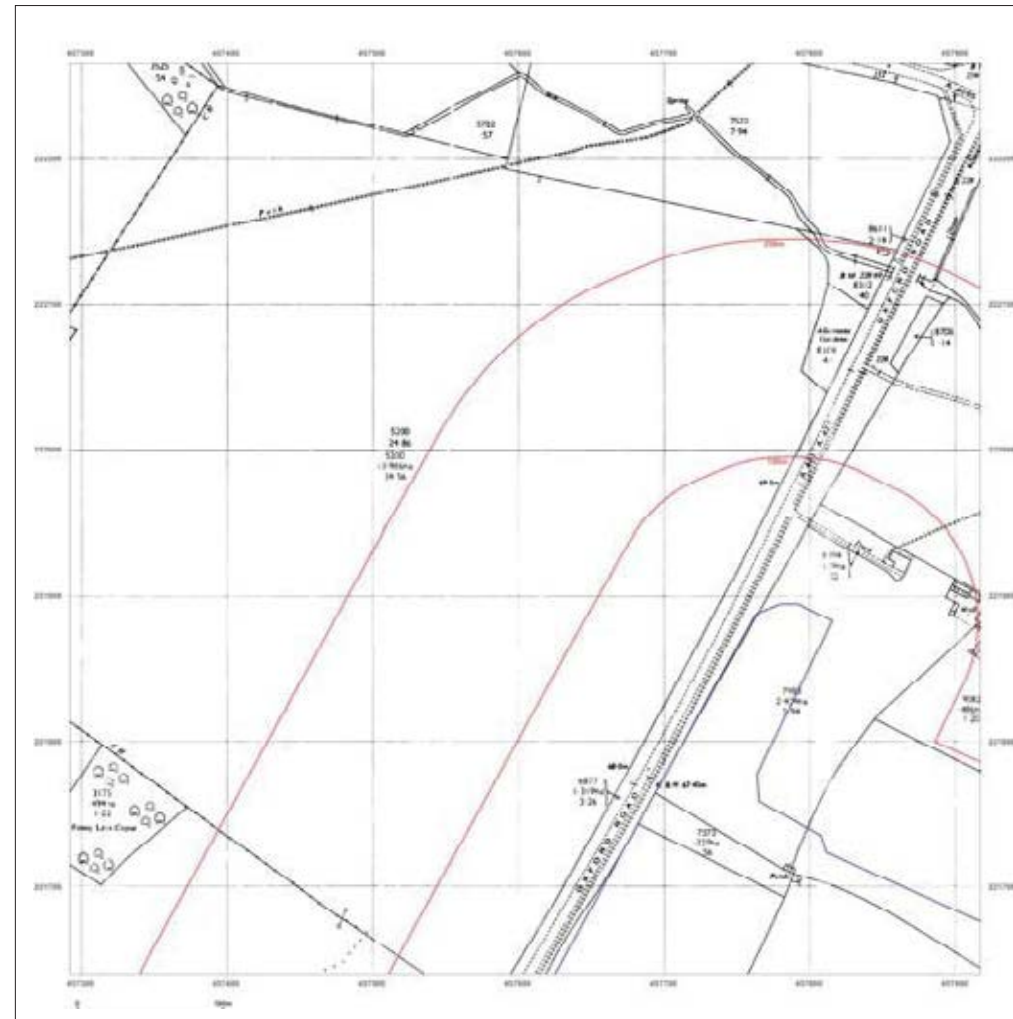


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 Revised 1966  
 Edition N/A  
 Copyright 1967  
 Levelled N/A

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 Revised 1966  
 Edition N/A  
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 Levelled N/A

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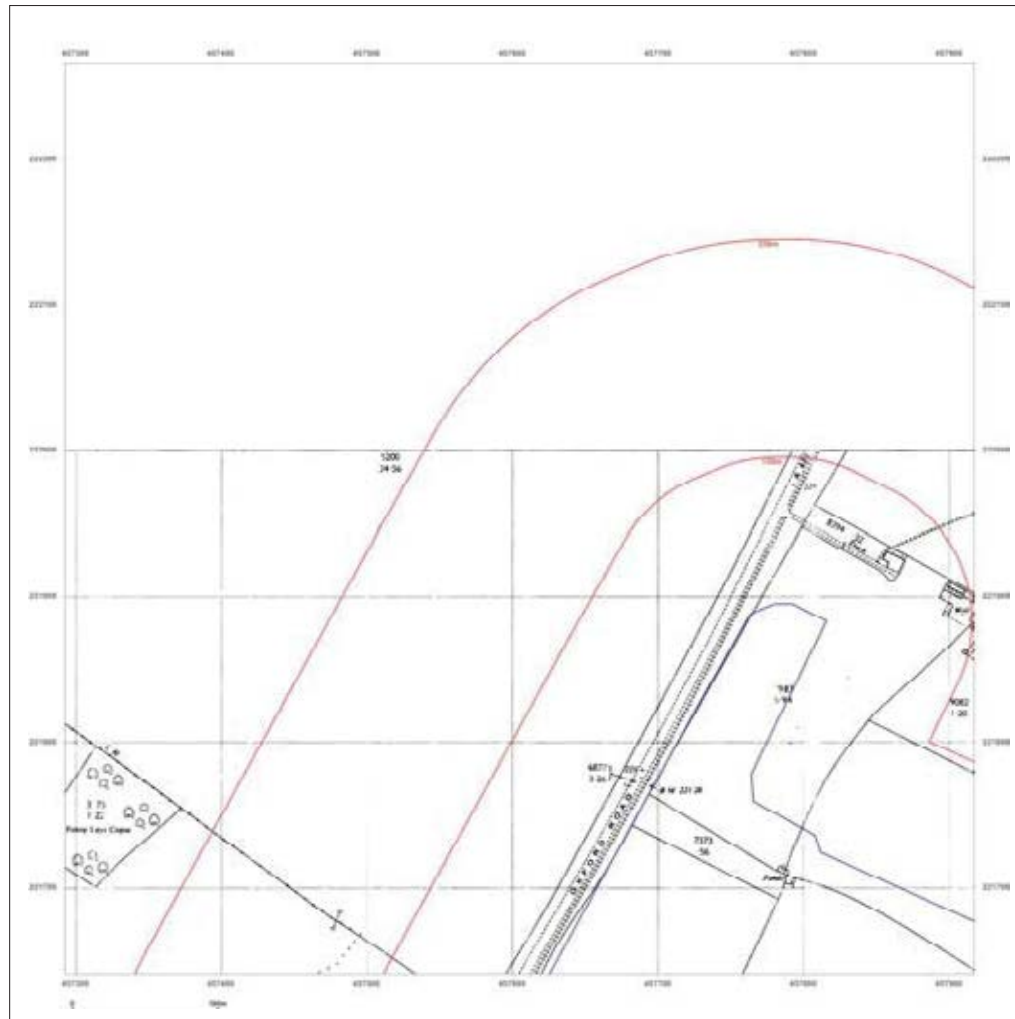


Surveyed N/A  
 Revised 1966  
 Edition N/A  
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 Revised N/A  
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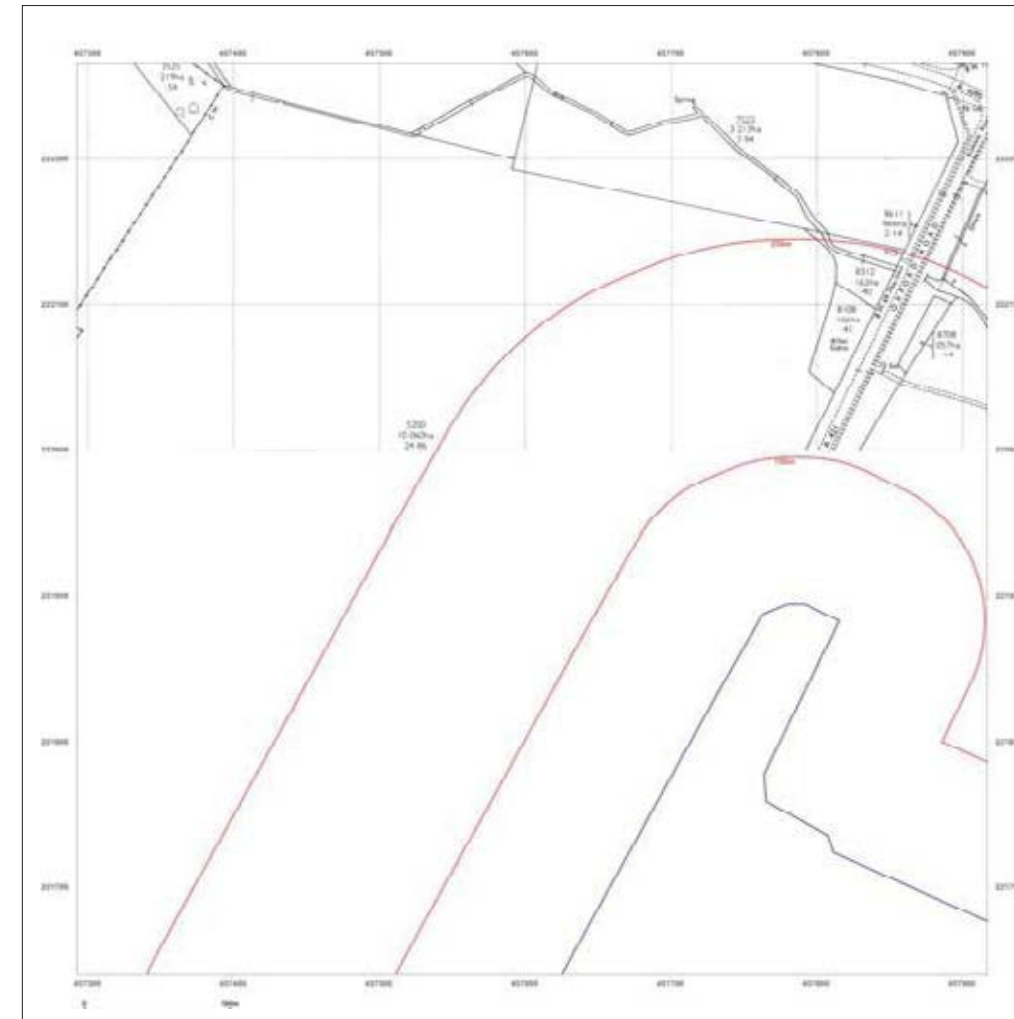
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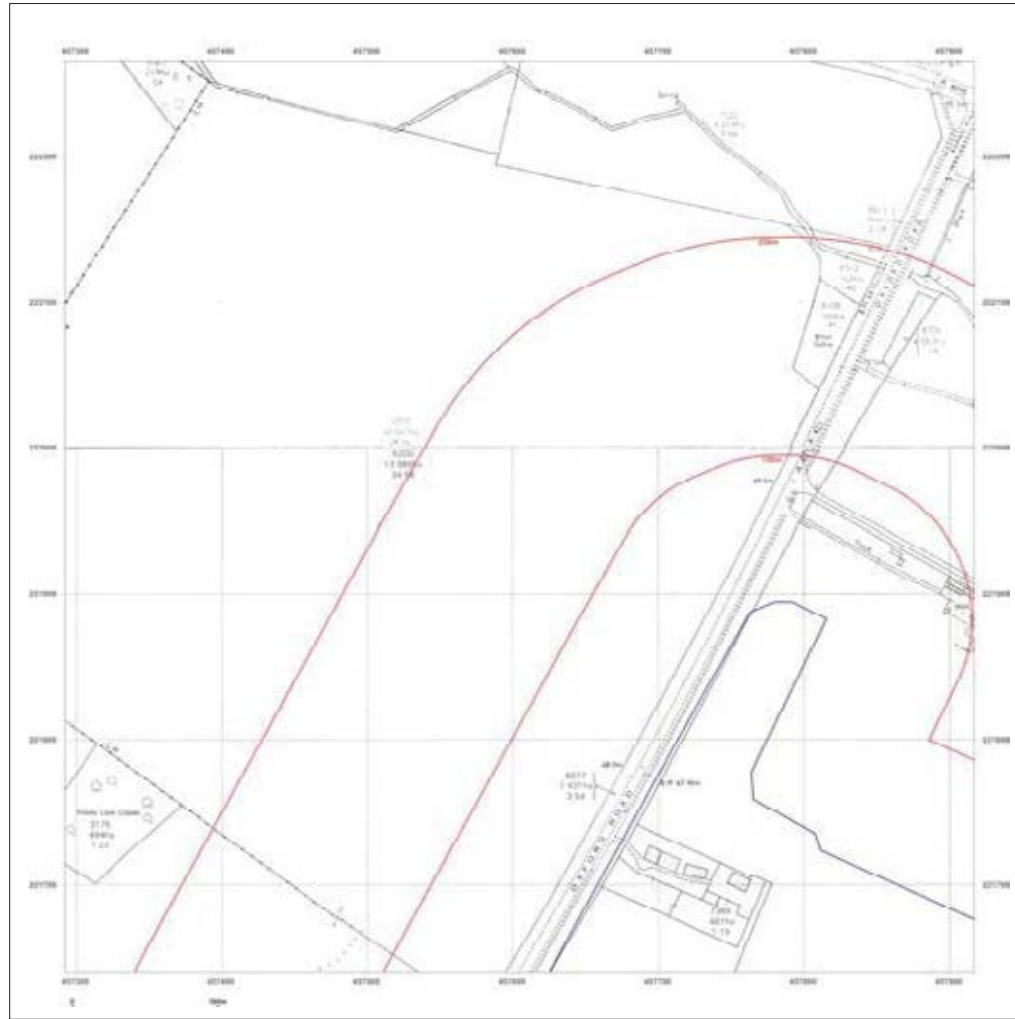
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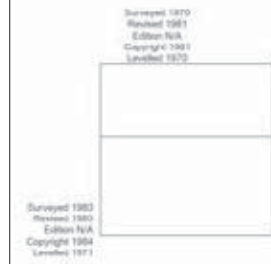
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Map Name: National Grid

Map date: 1981-1983

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1983  
Finished 1983  
Edison N/A  
Copyright 1984  
Levelled 1971

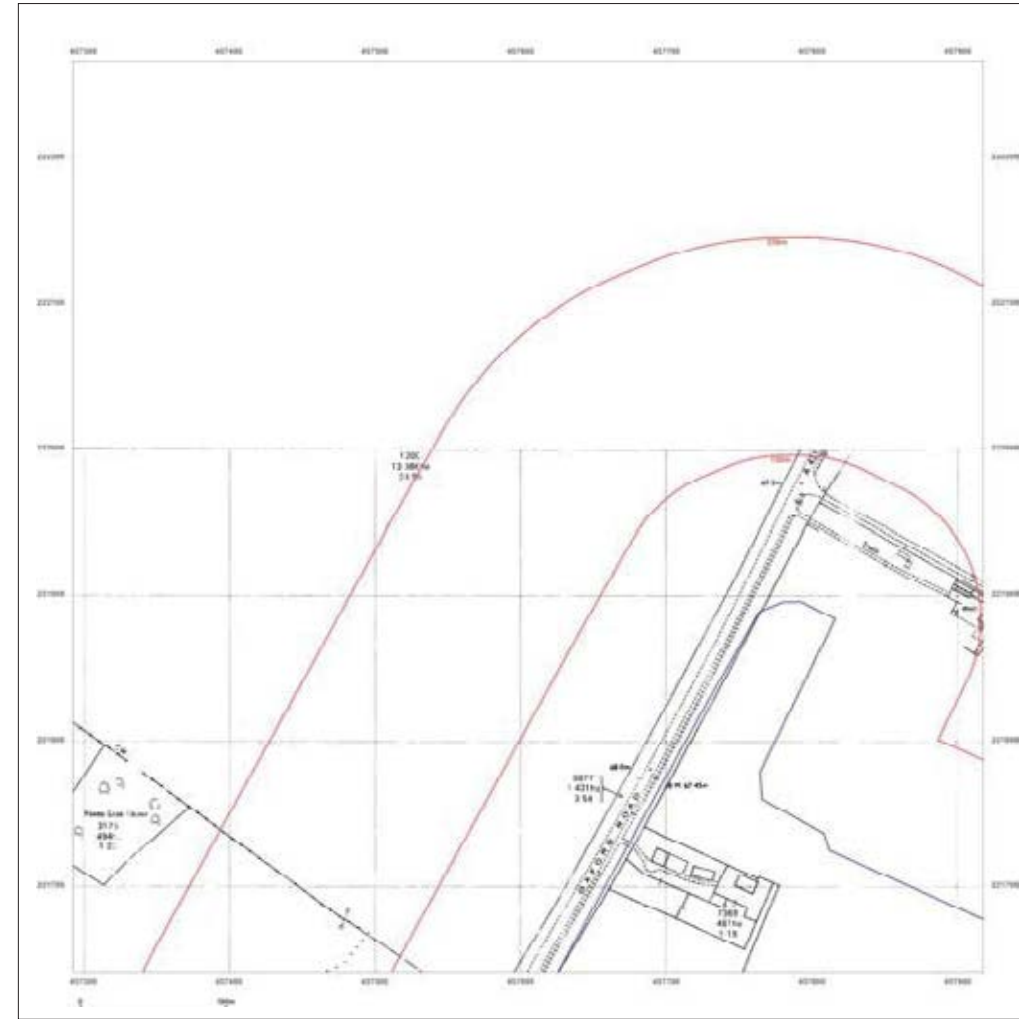


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Client Ref: 036269  
Report Ref: GS-3722222\_LS\_1\_2  
Grid Ref: 457605, 221953

Map Name: National Grid

Map date: 1984

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Printed at: 1:2,500



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Copyright N/A  
Levelled N/A

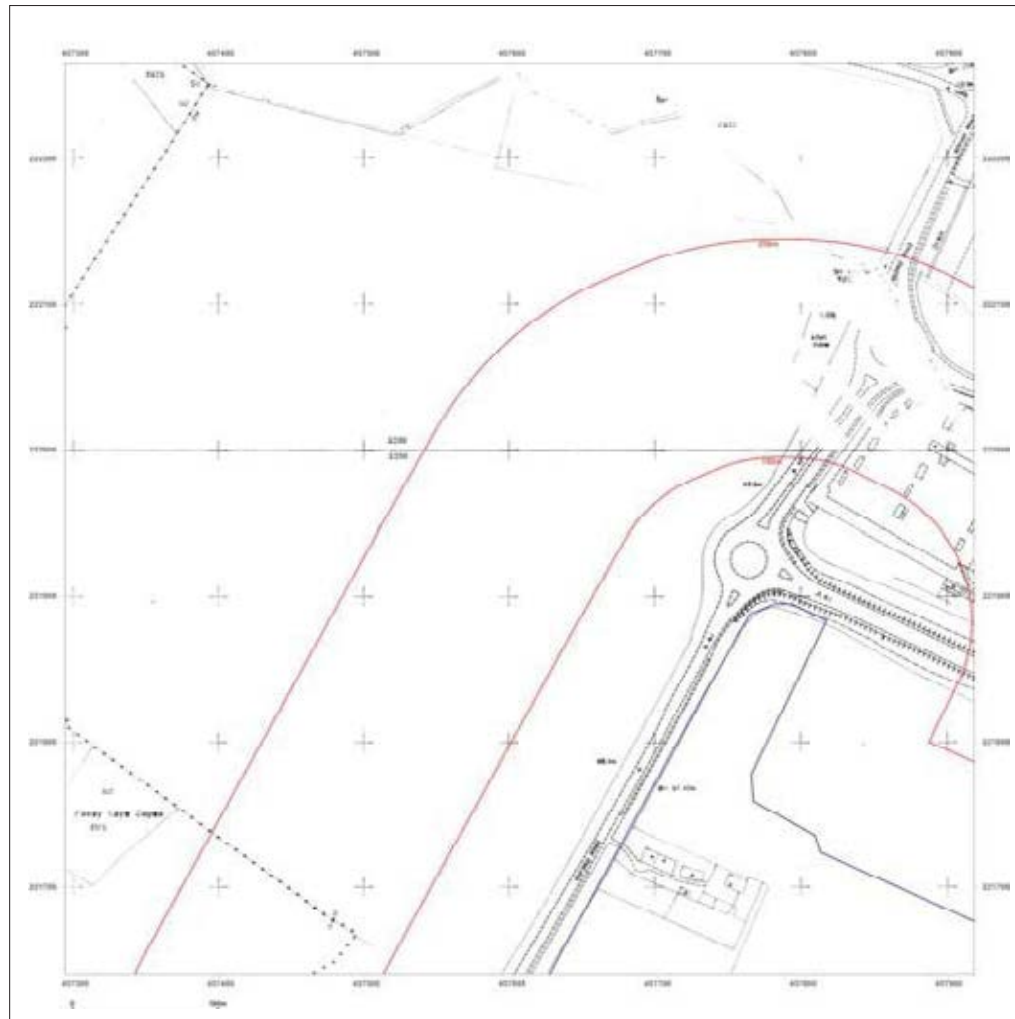


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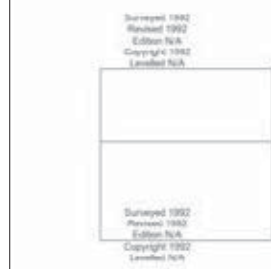
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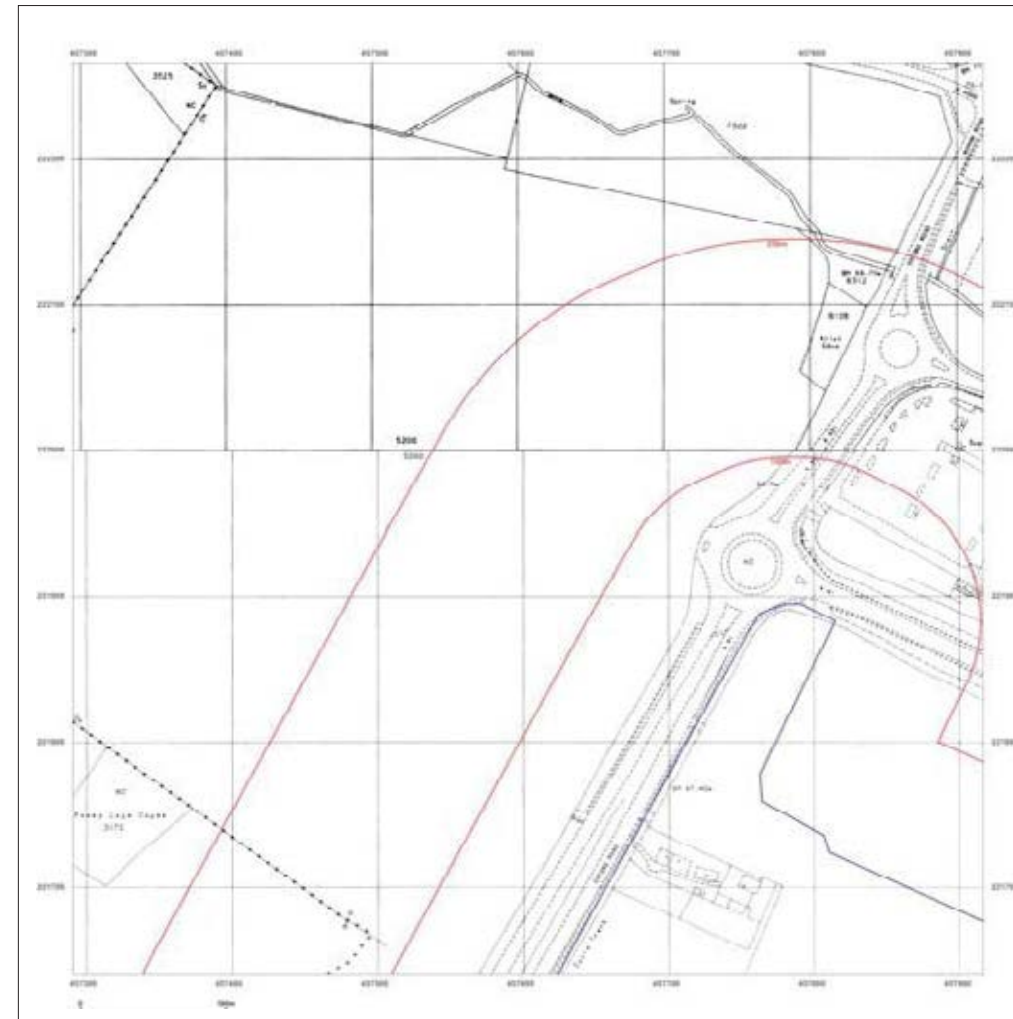


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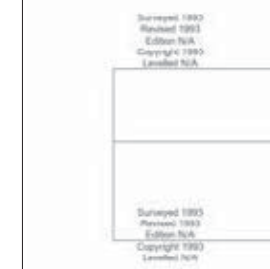
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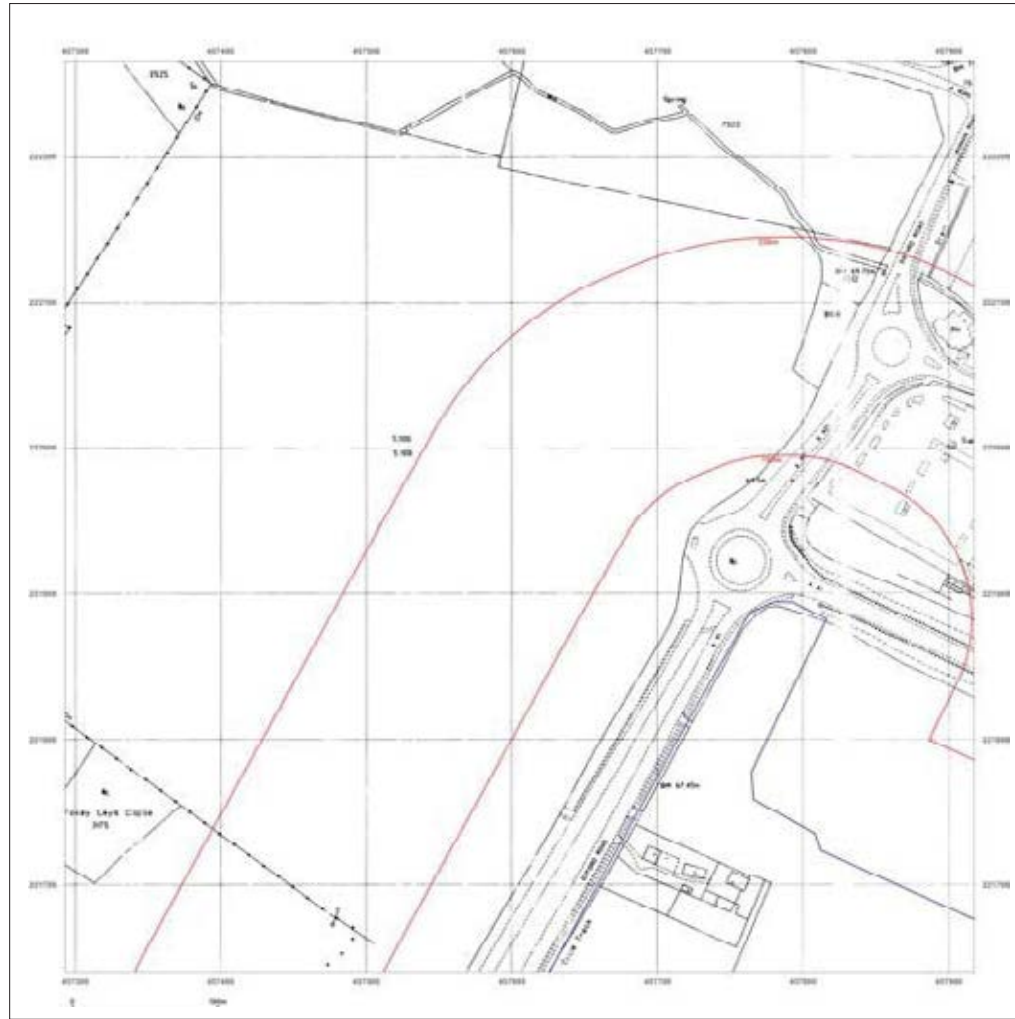


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Client Ref: 036269  
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Grid Ref: 457605, 221953

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Map date: 1994

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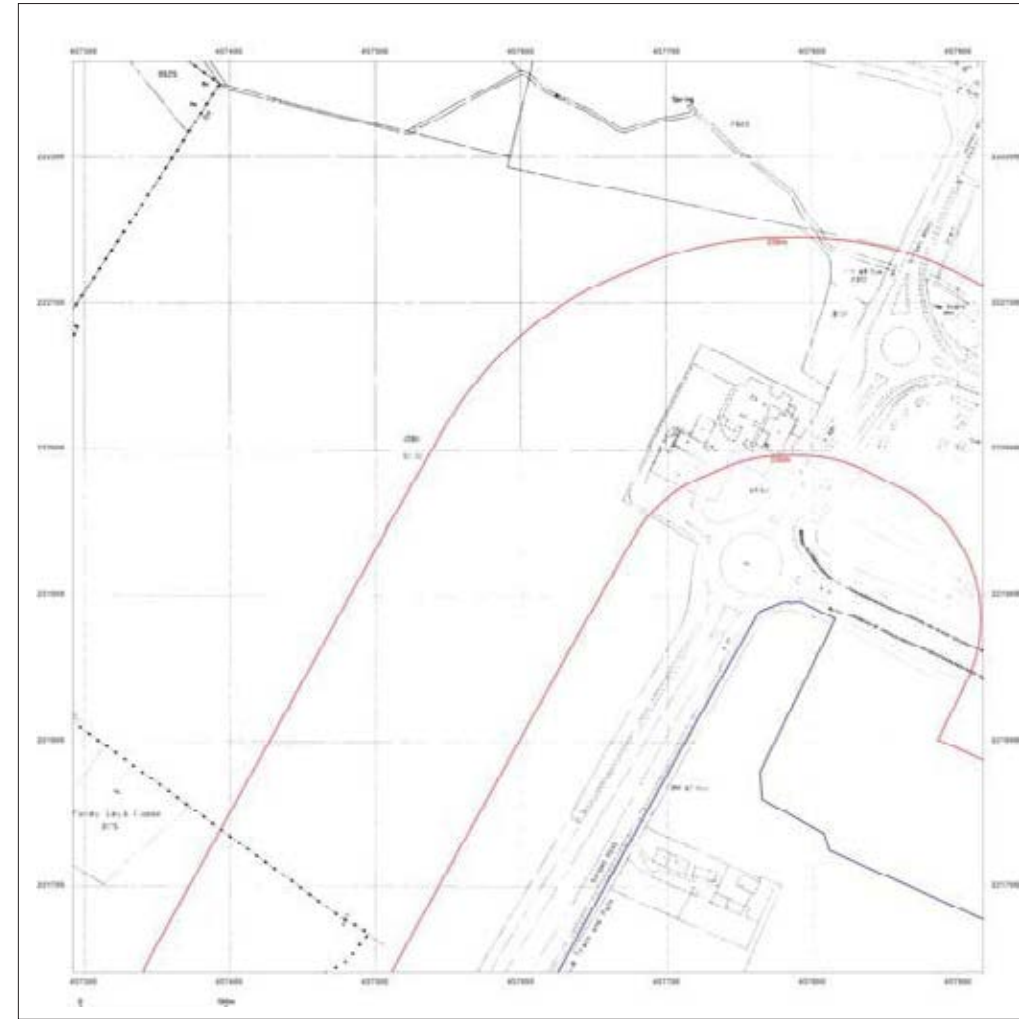


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Map date: 1995

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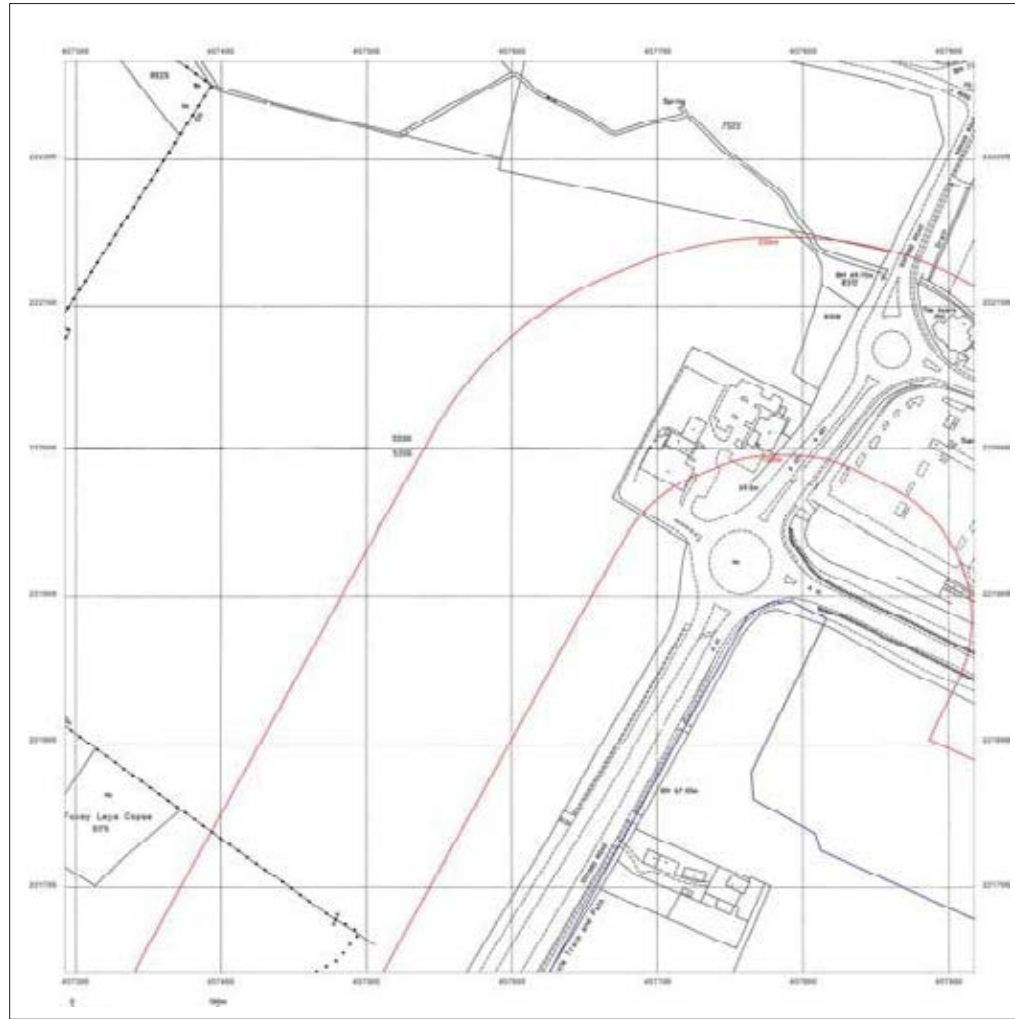


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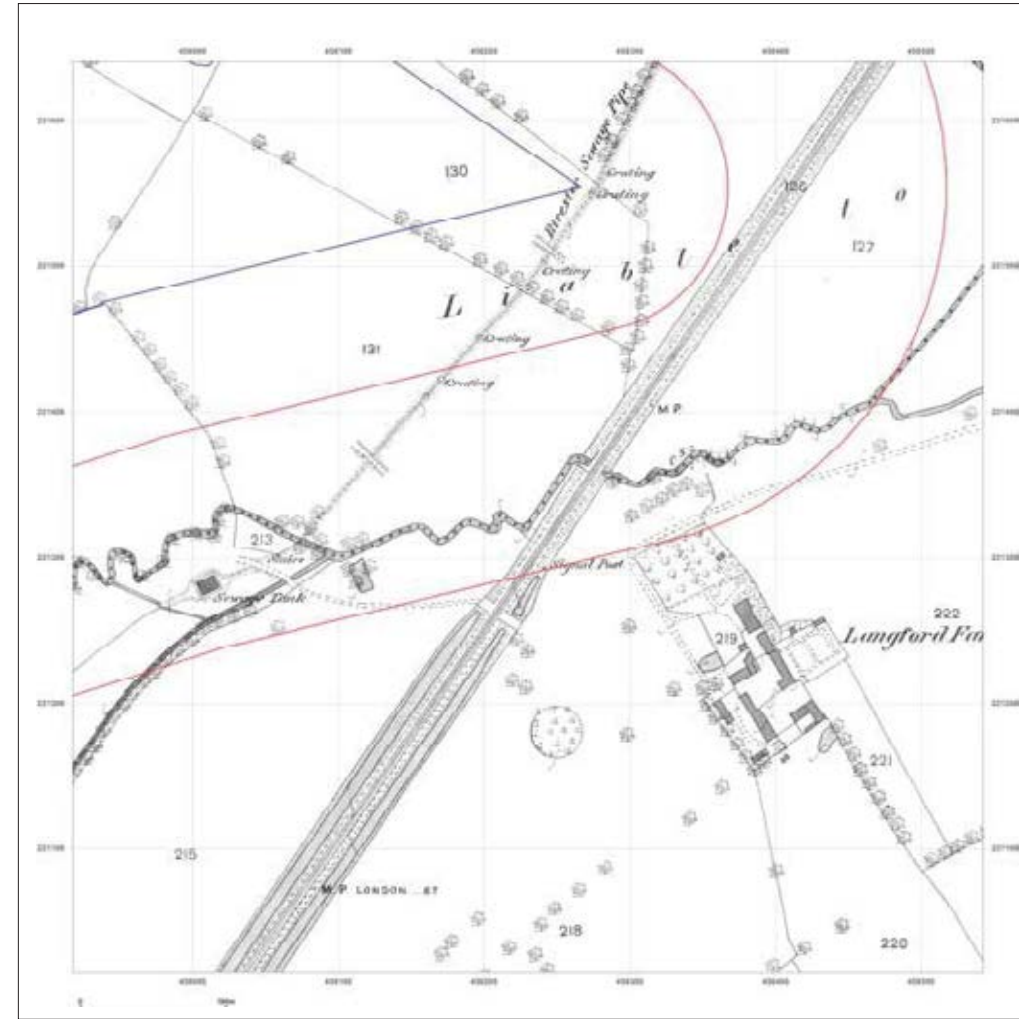


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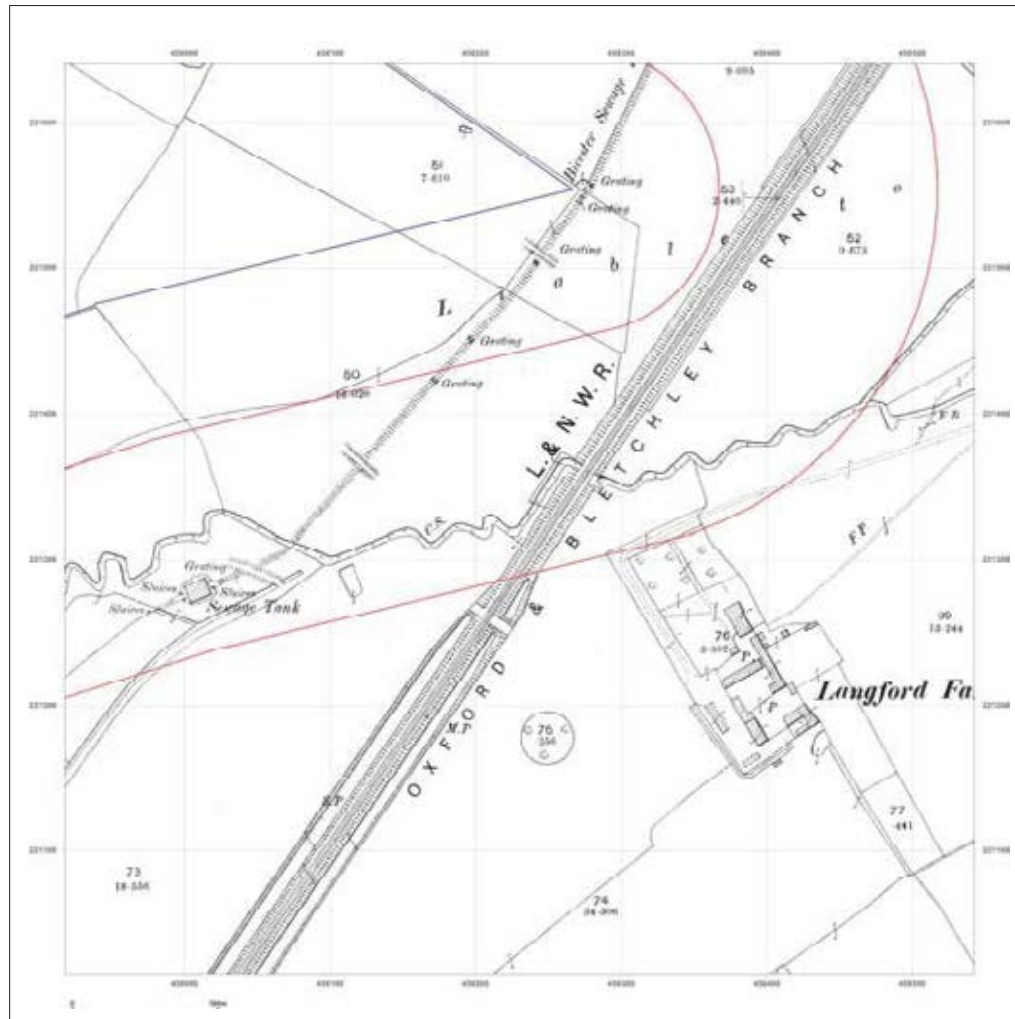


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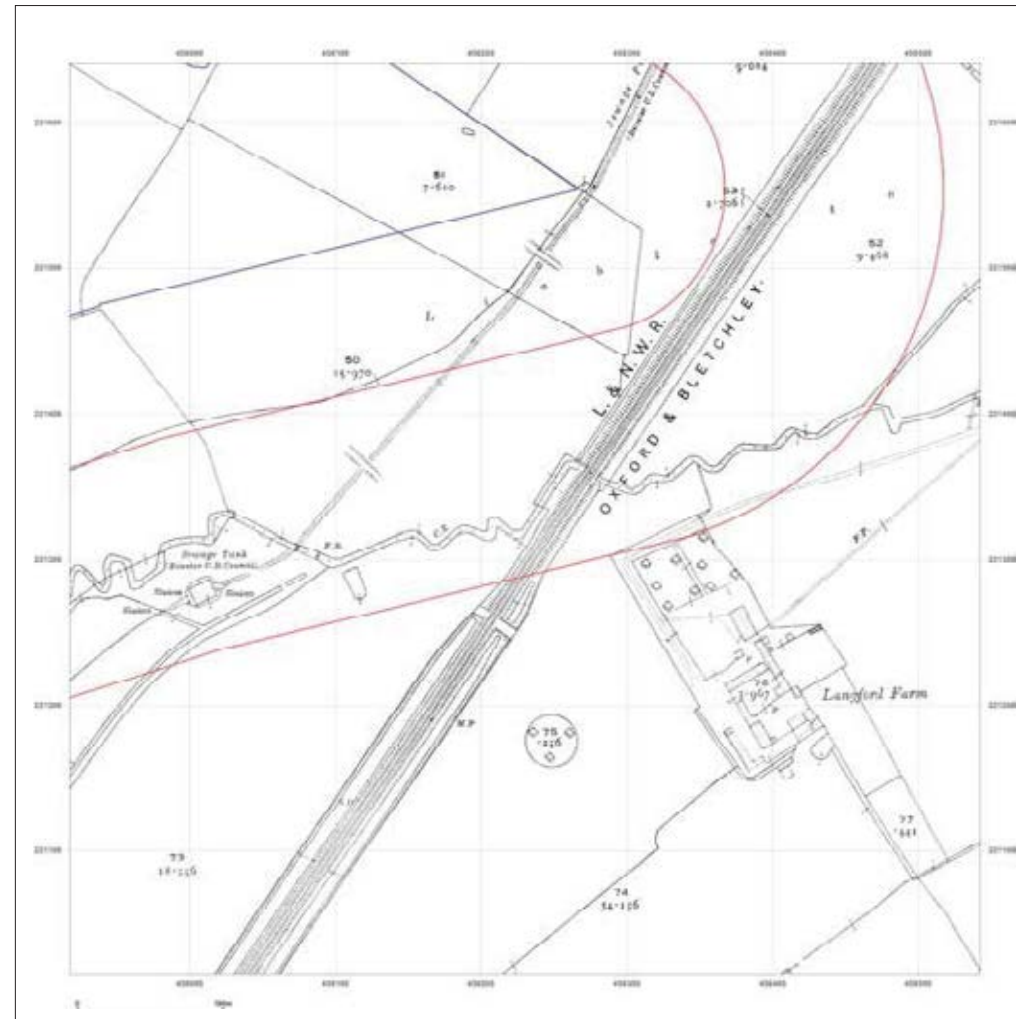
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**Client Ref:** 036269  
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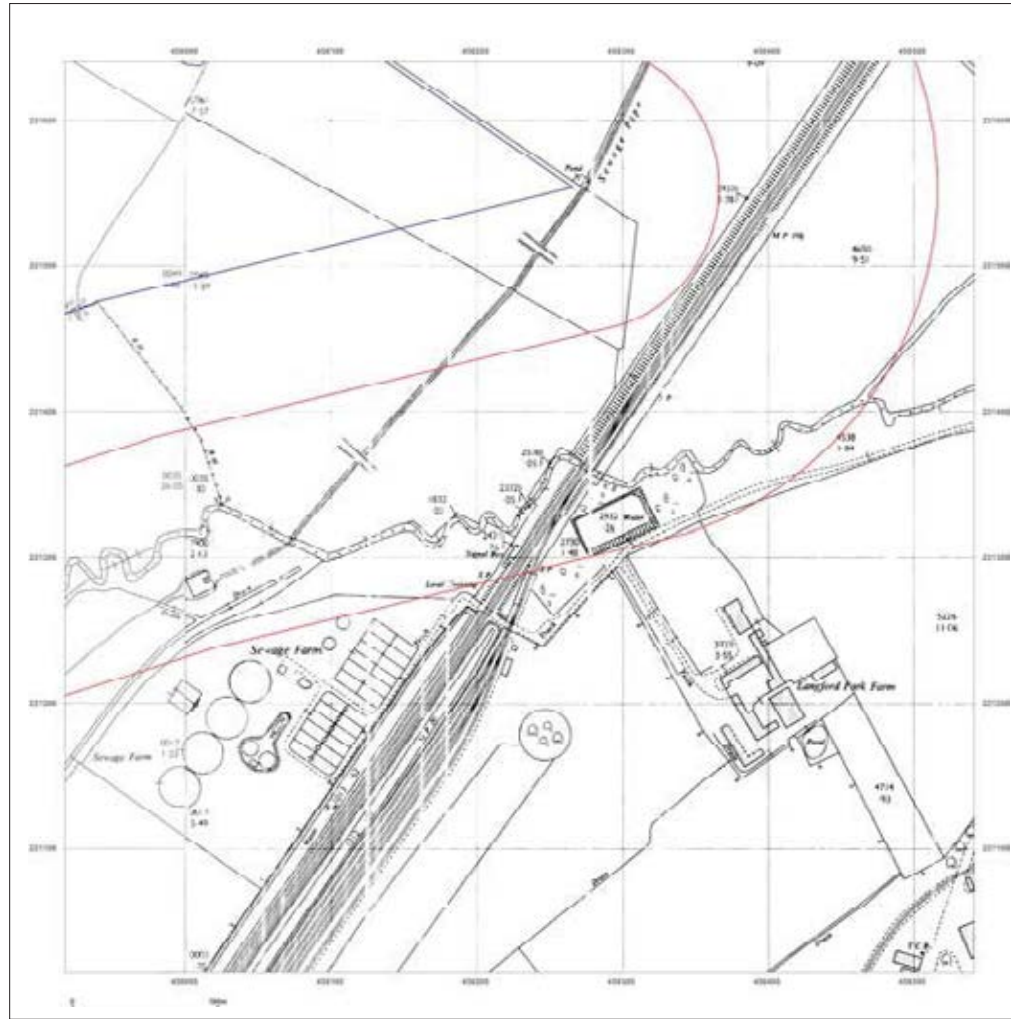


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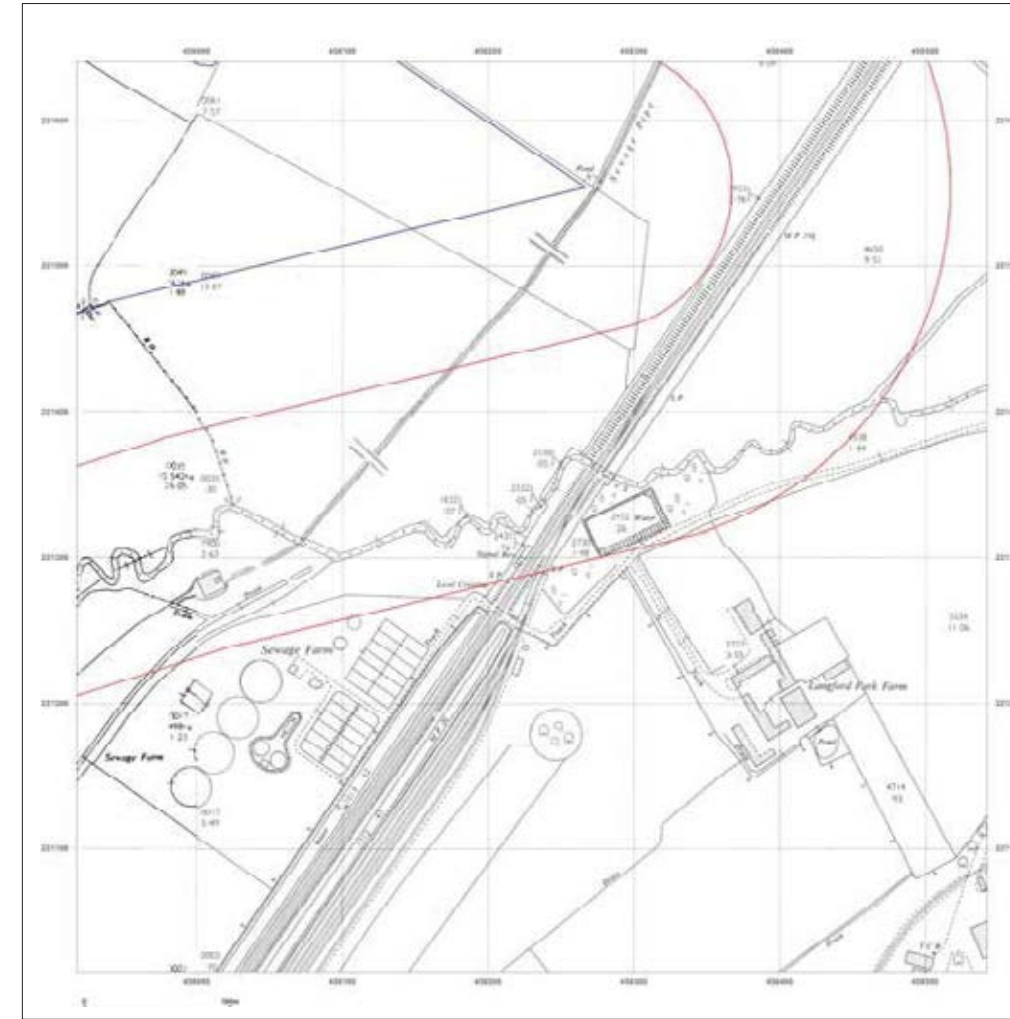
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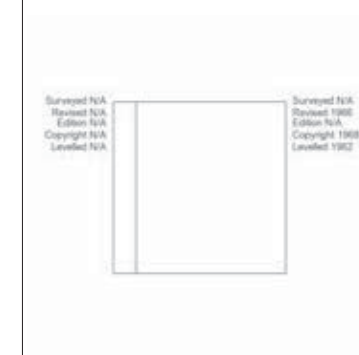
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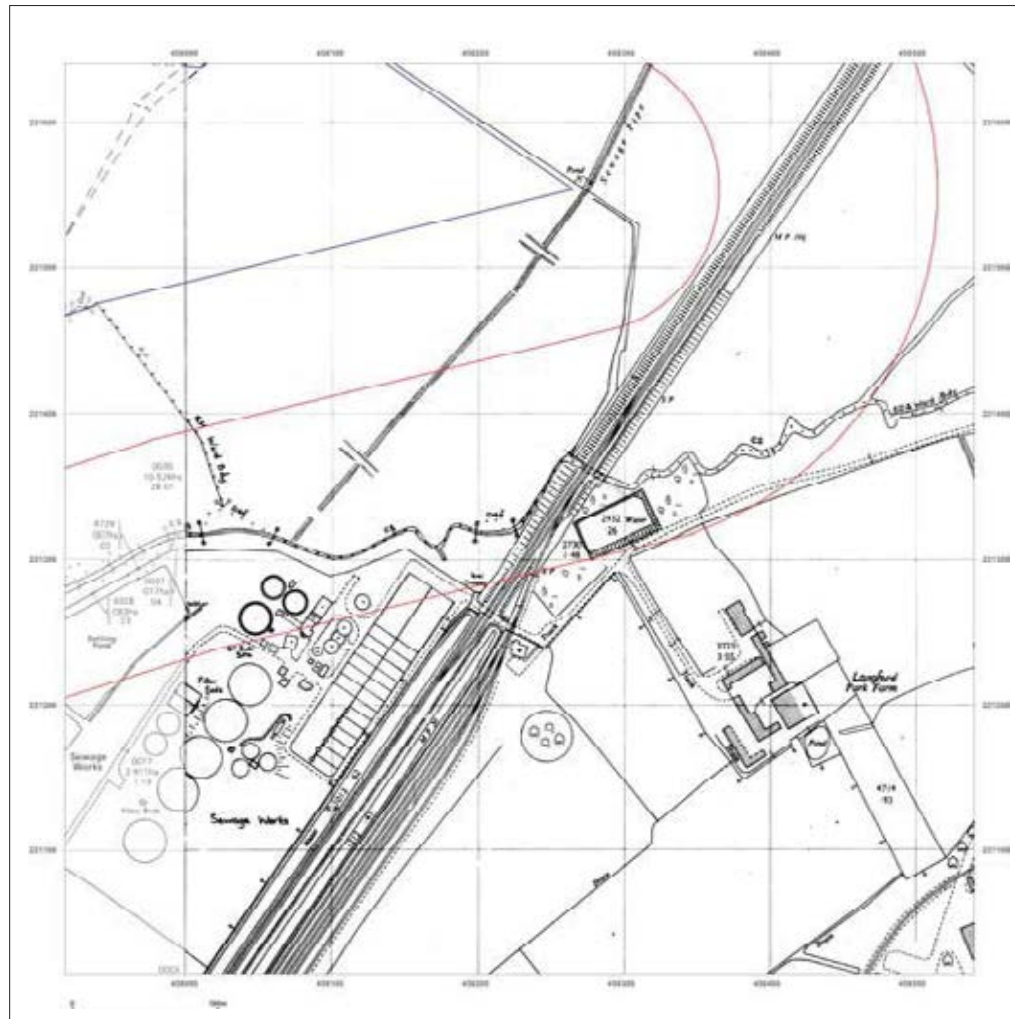
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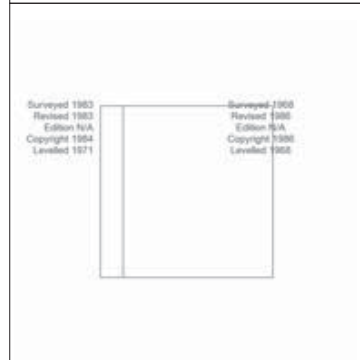
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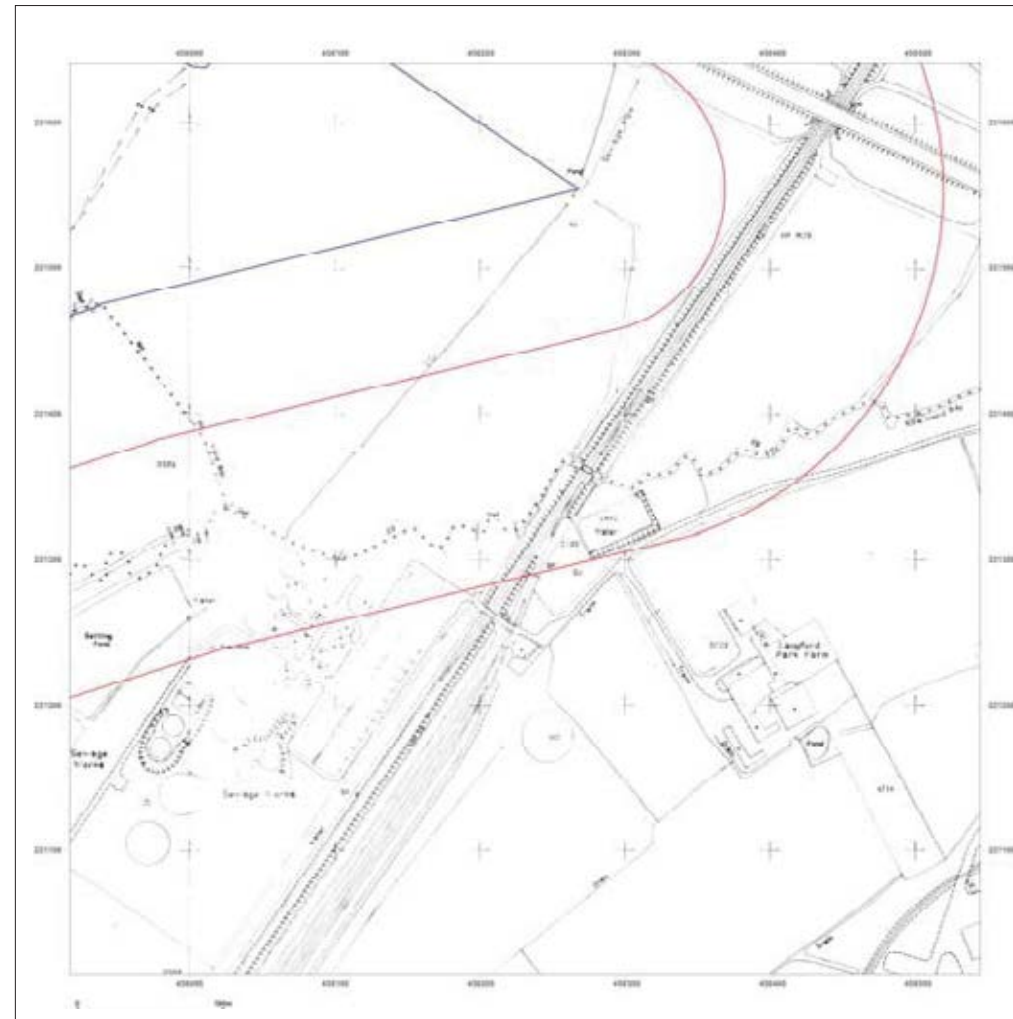
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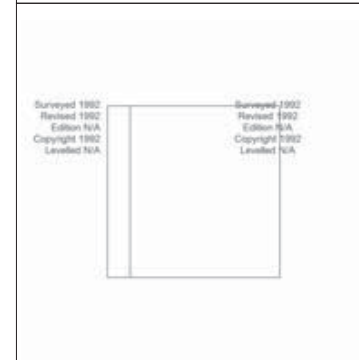
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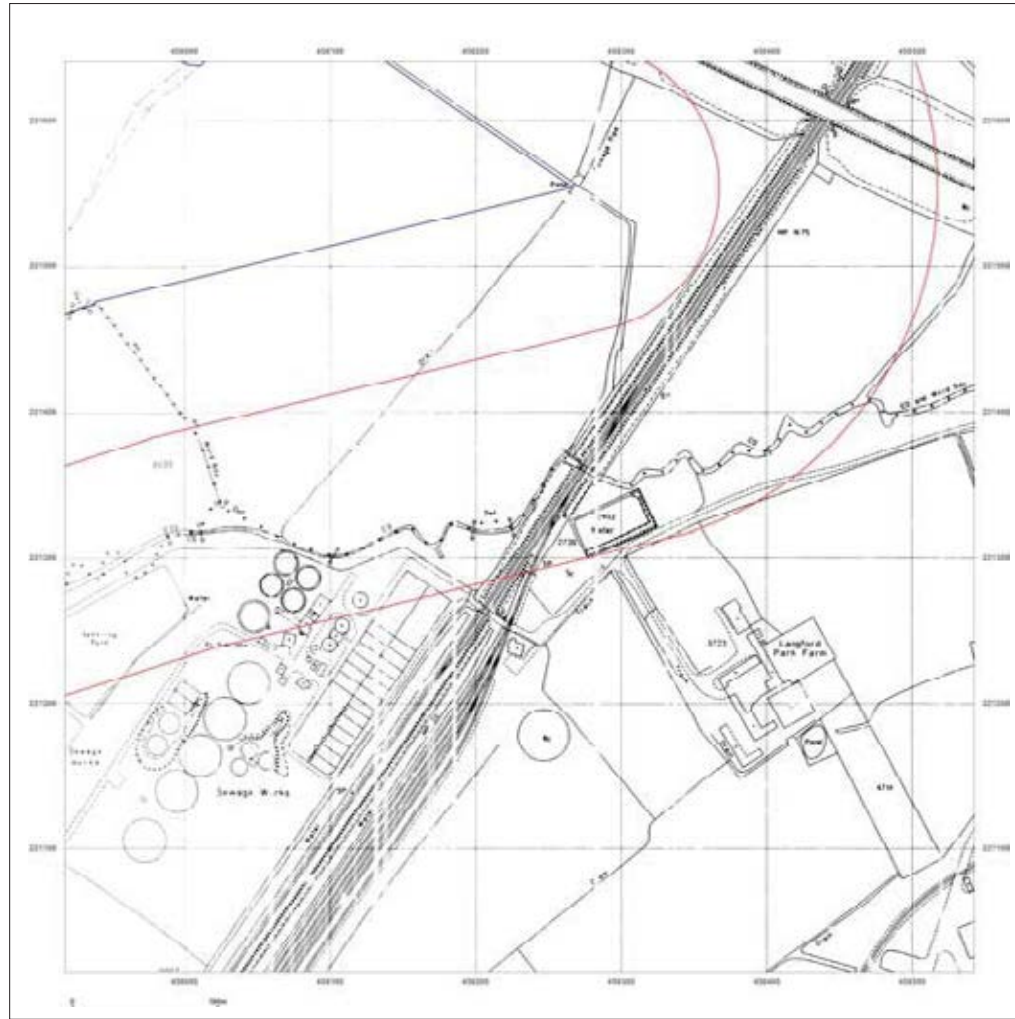
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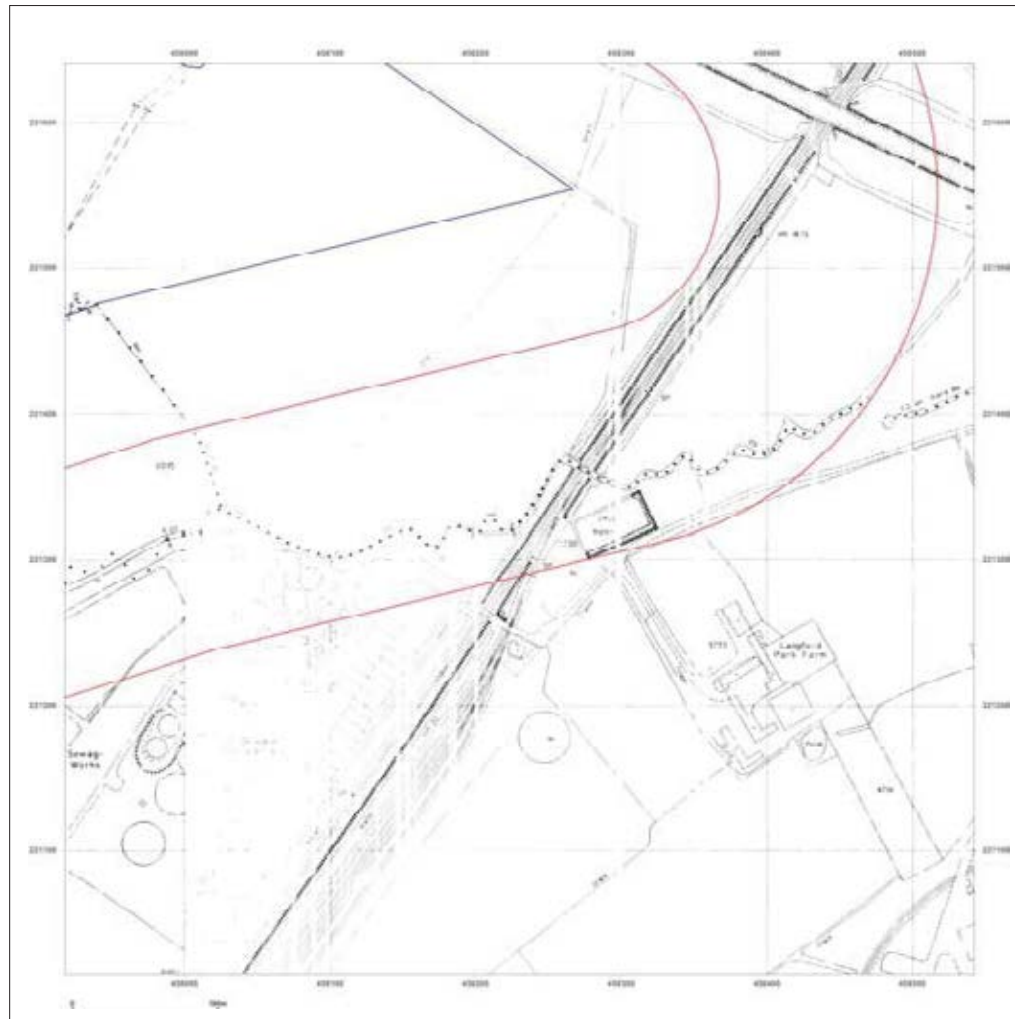


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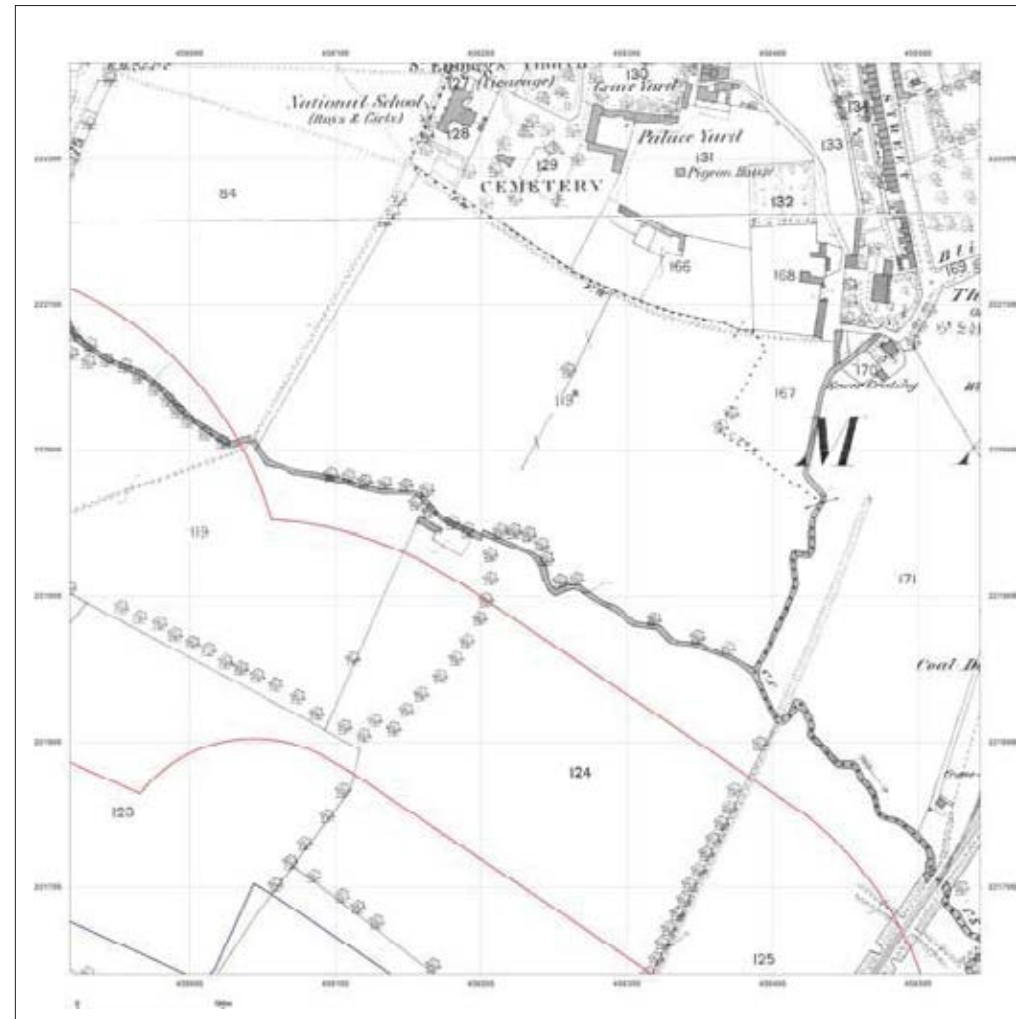
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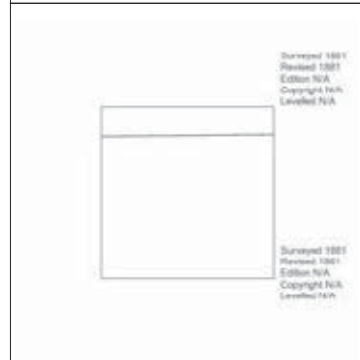
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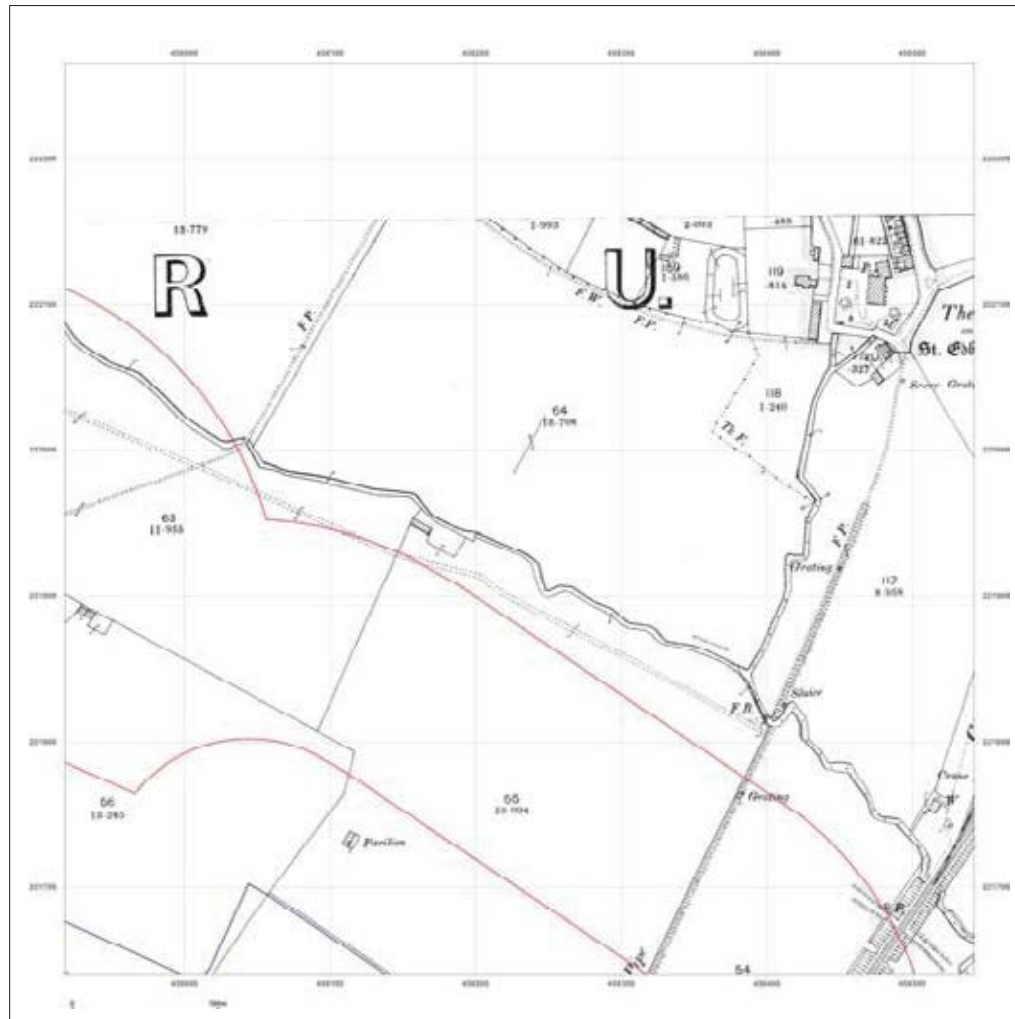
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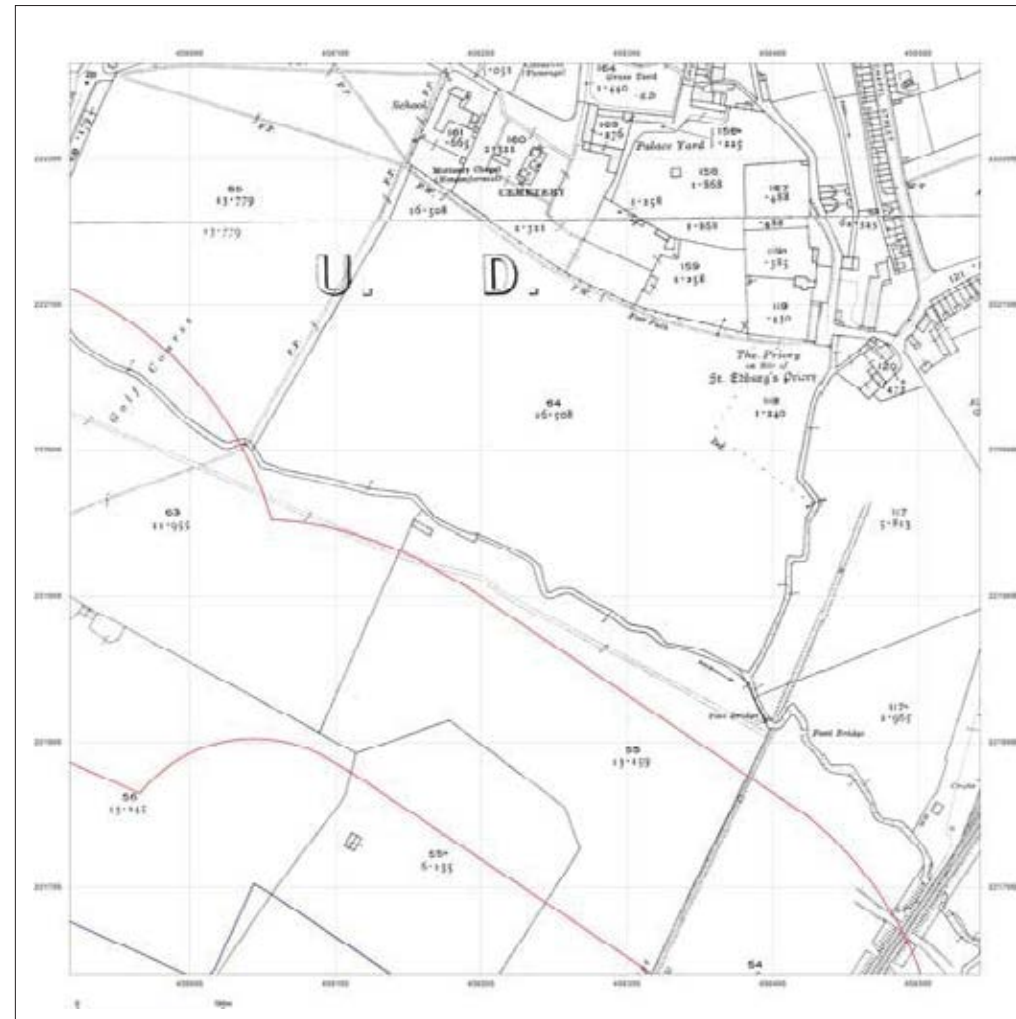
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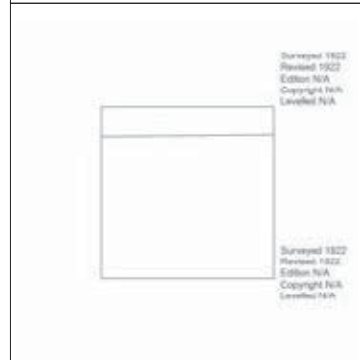
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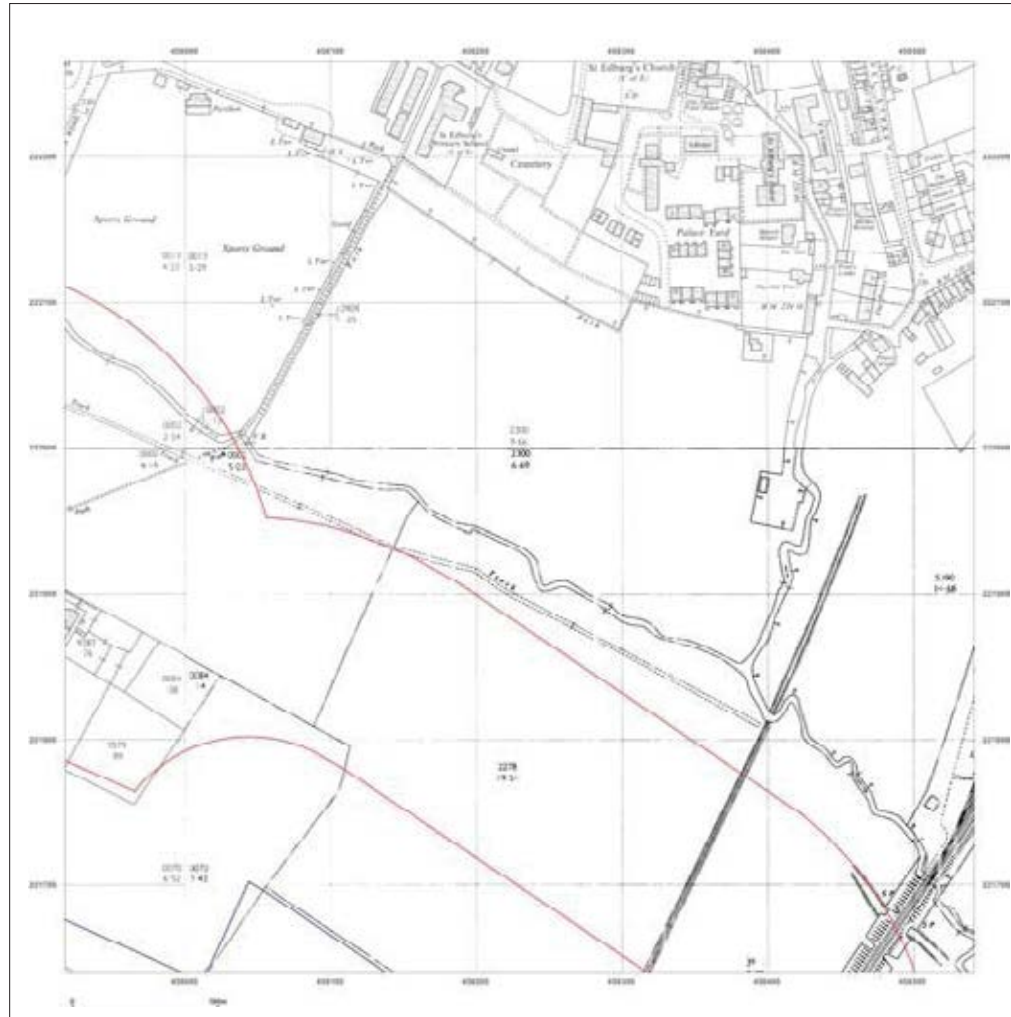
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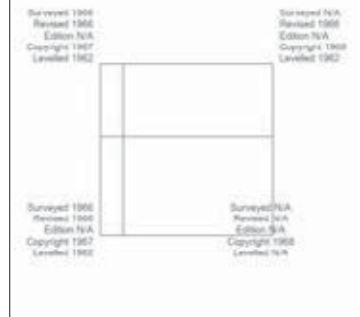
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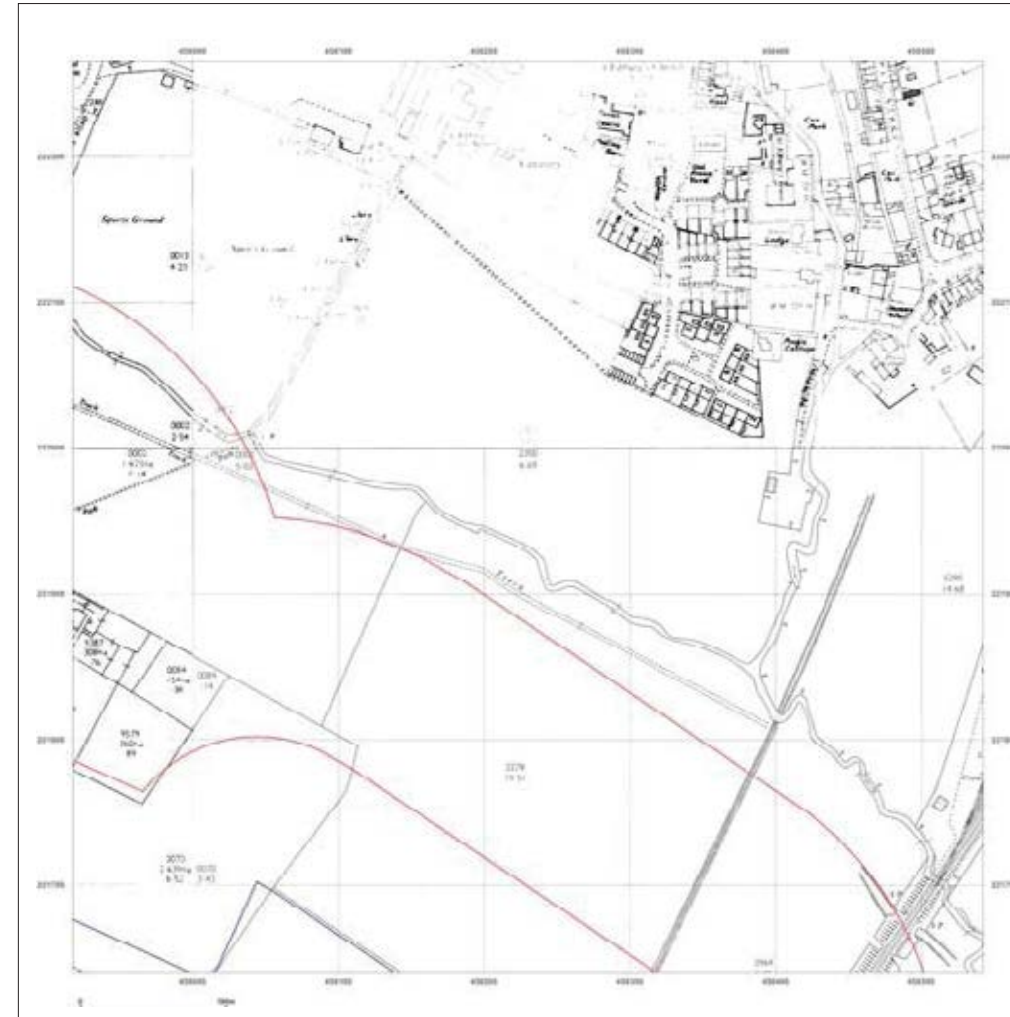


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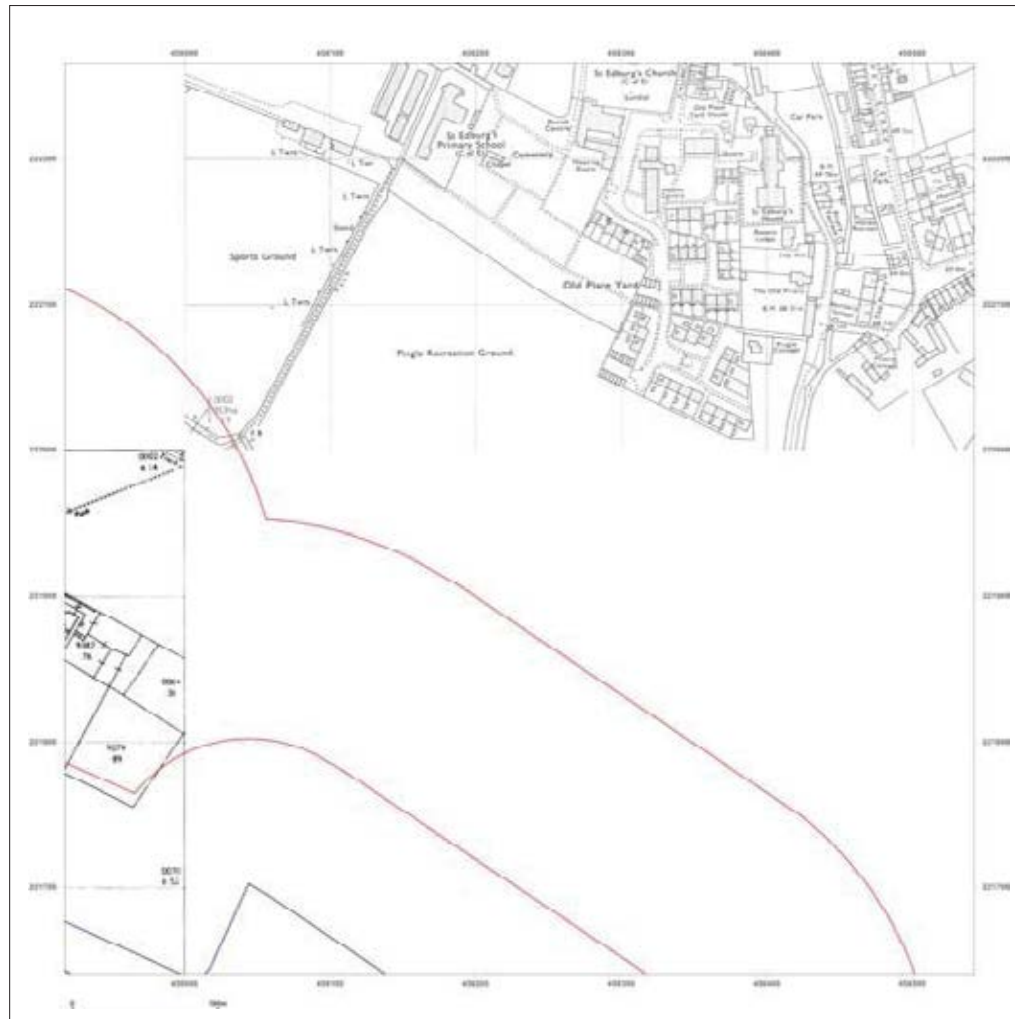


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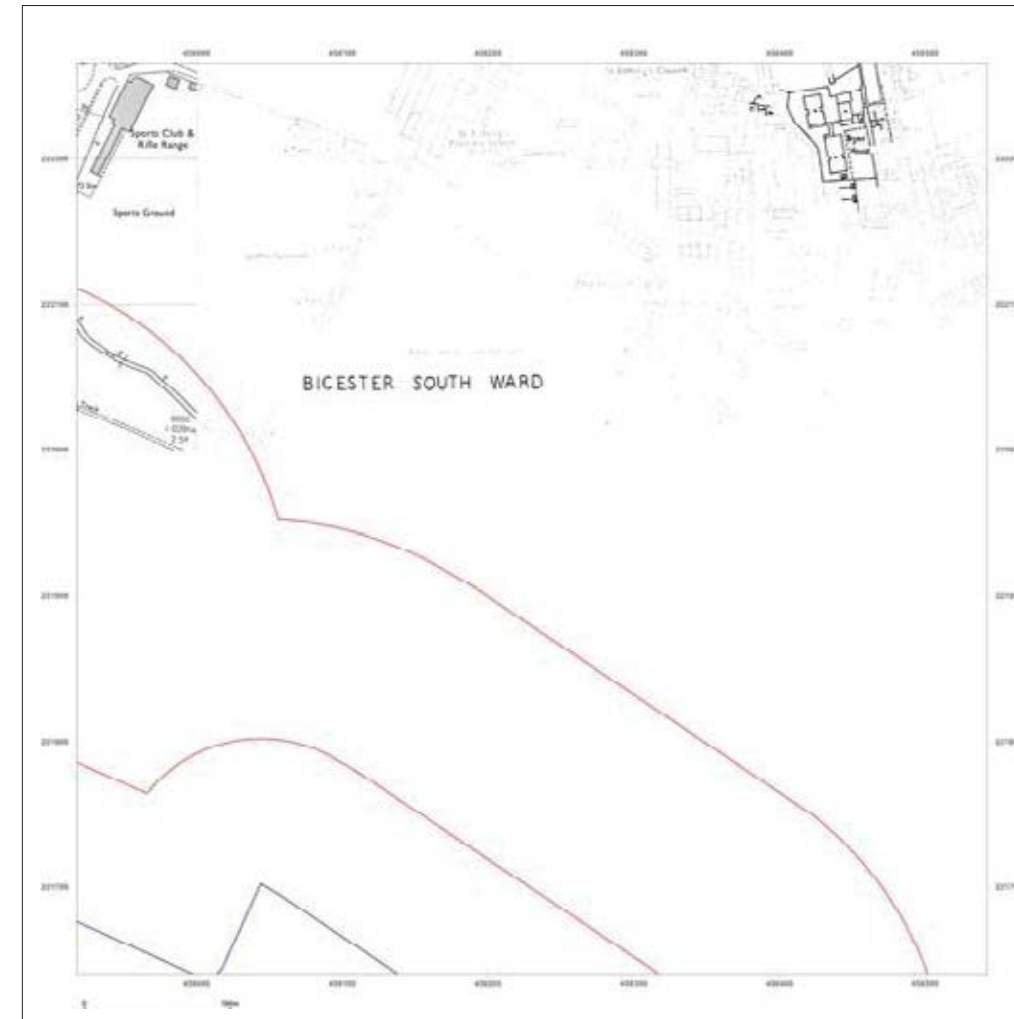
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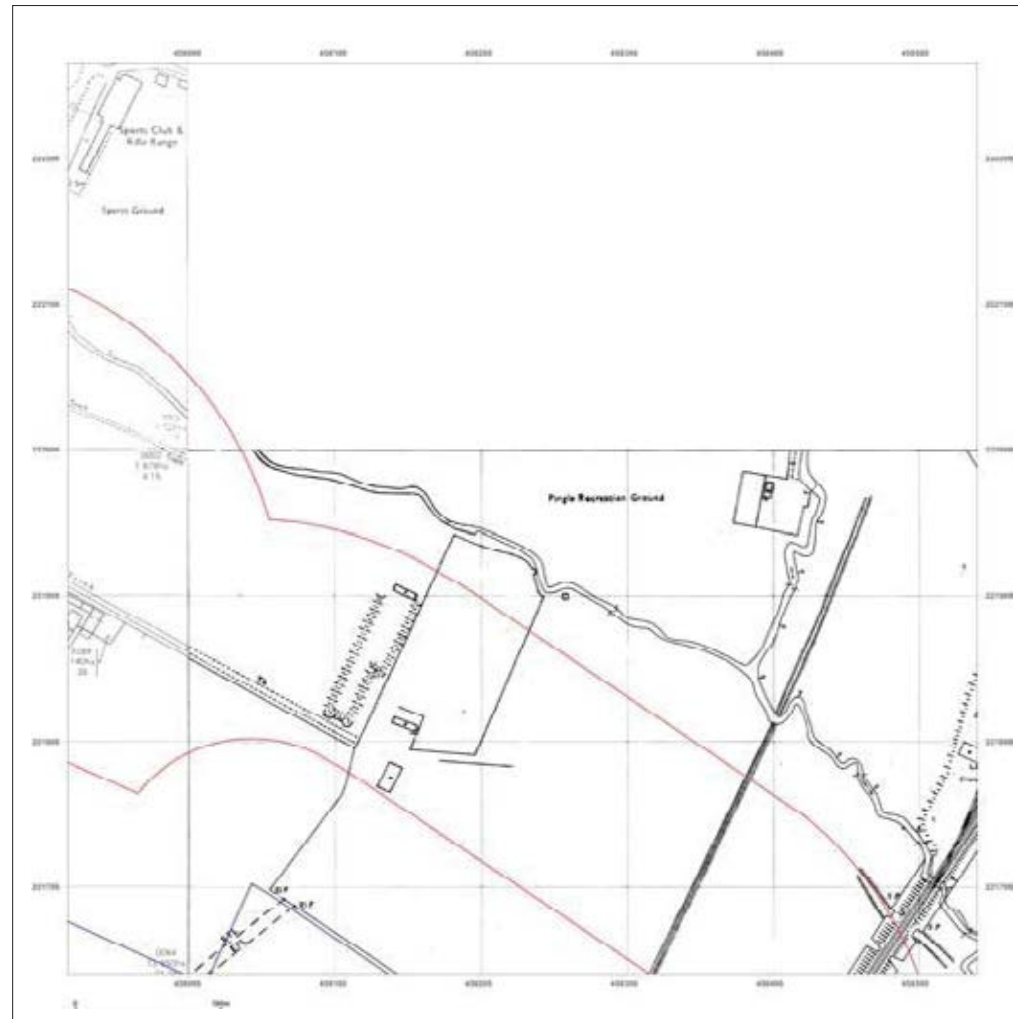
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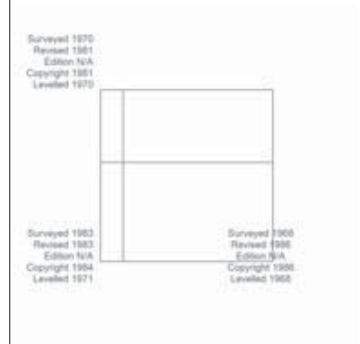
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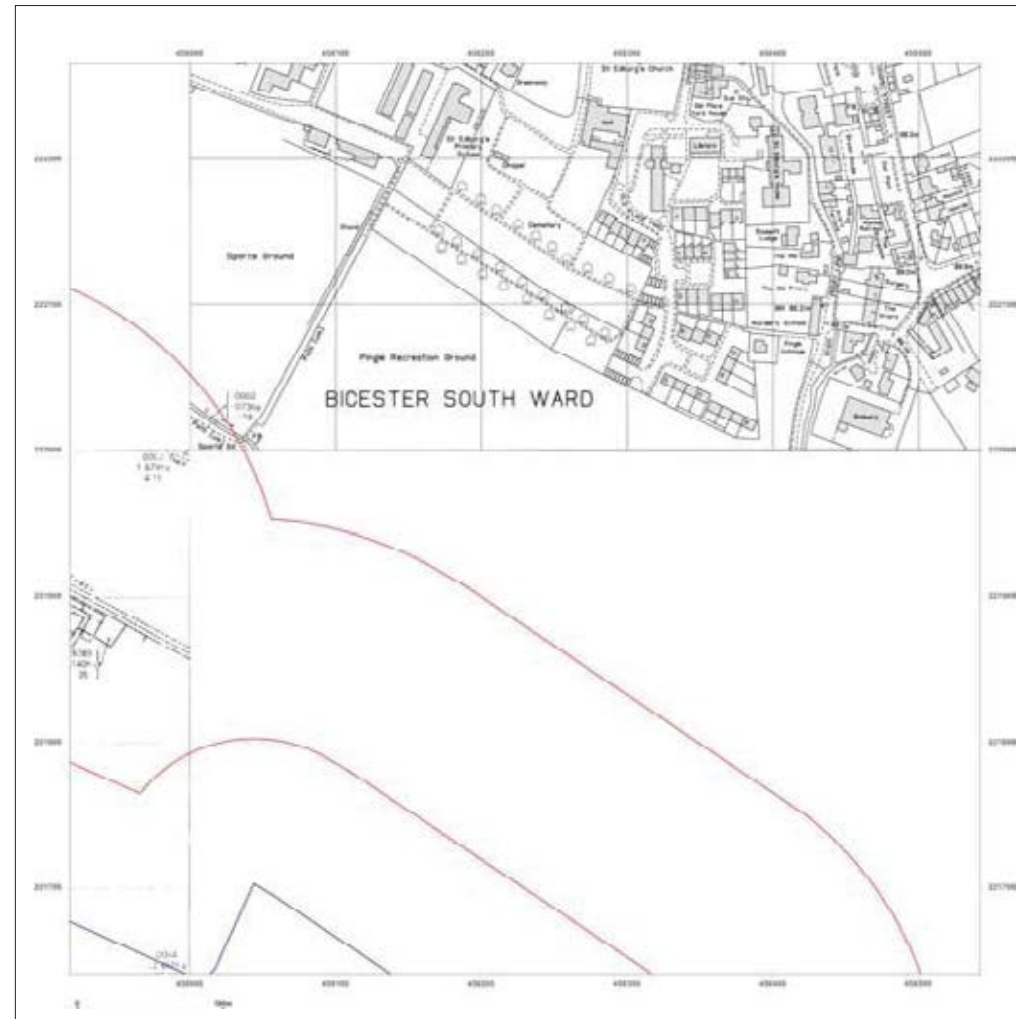
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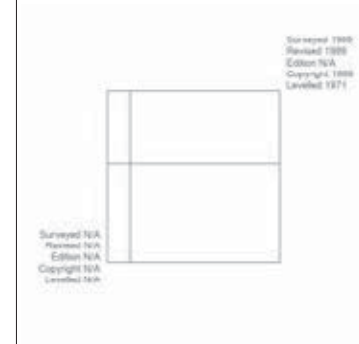
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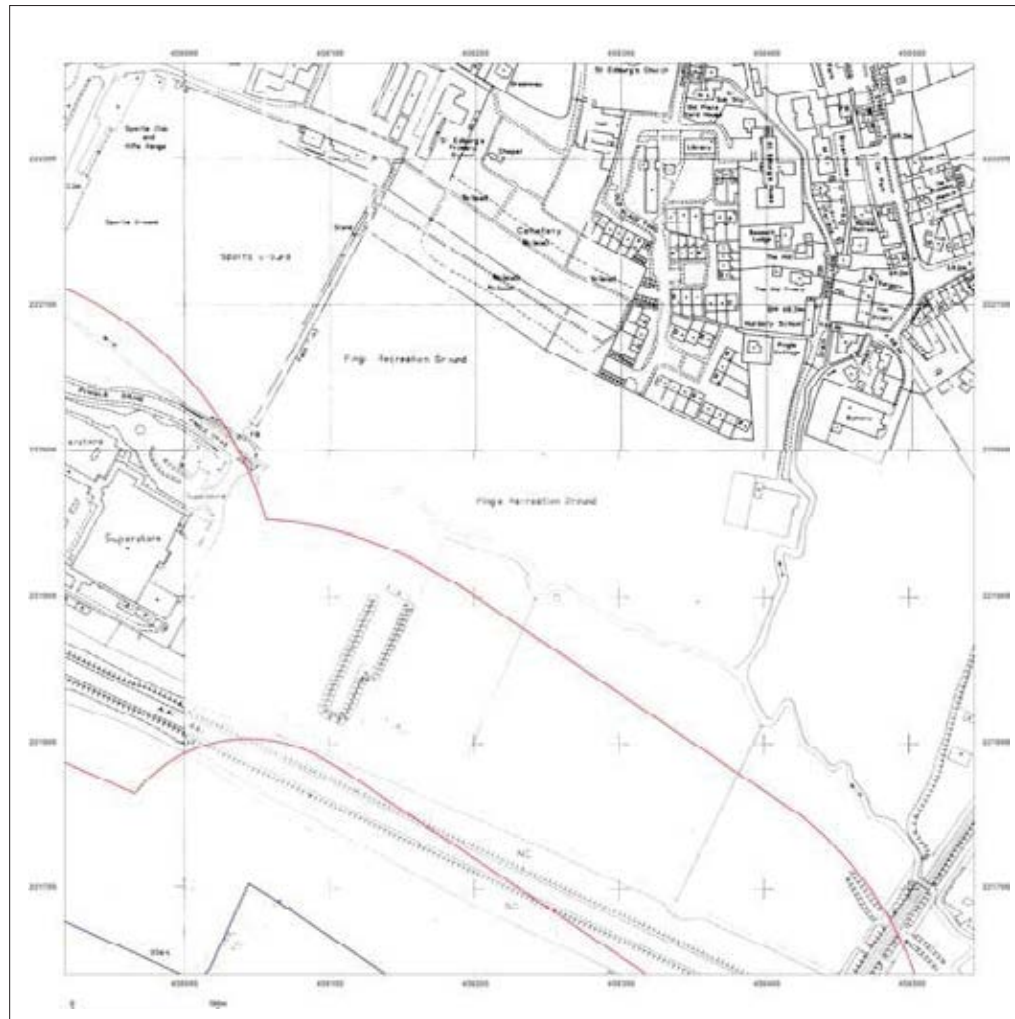
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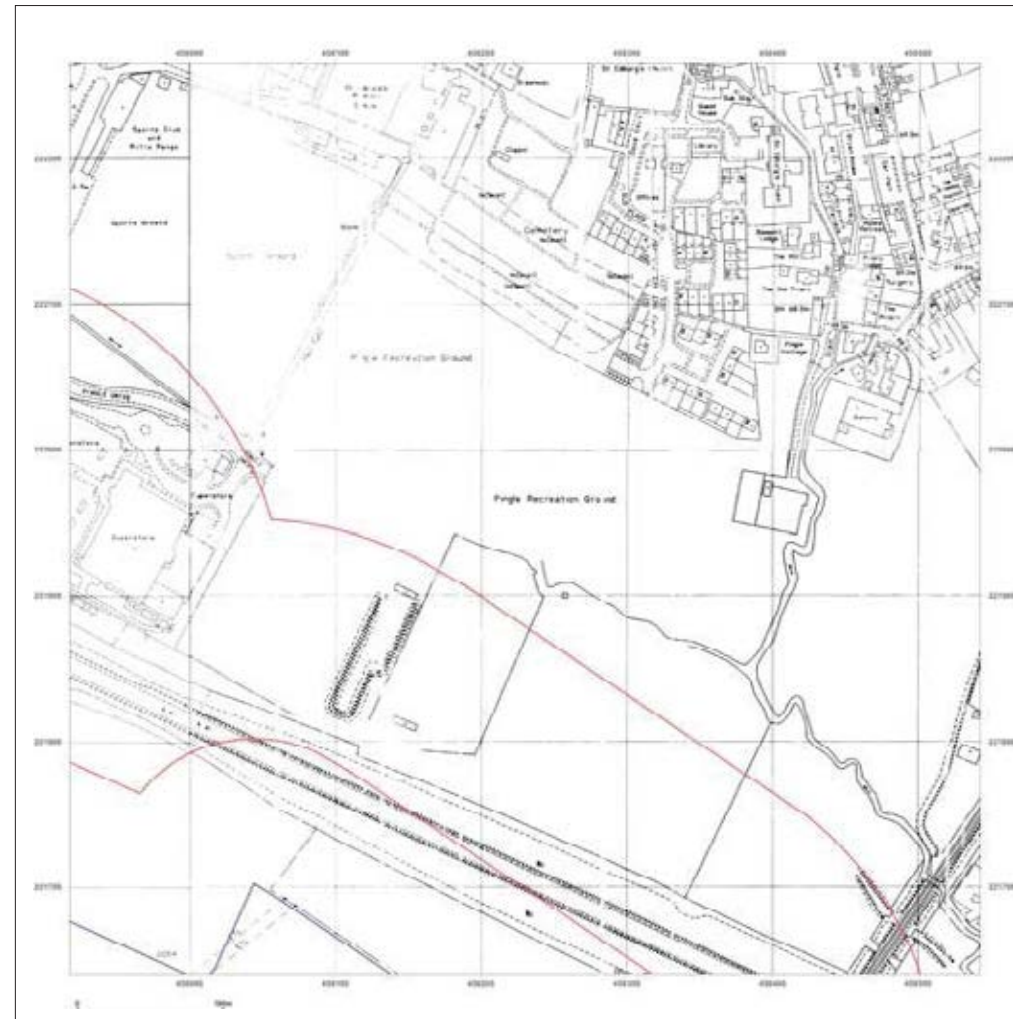


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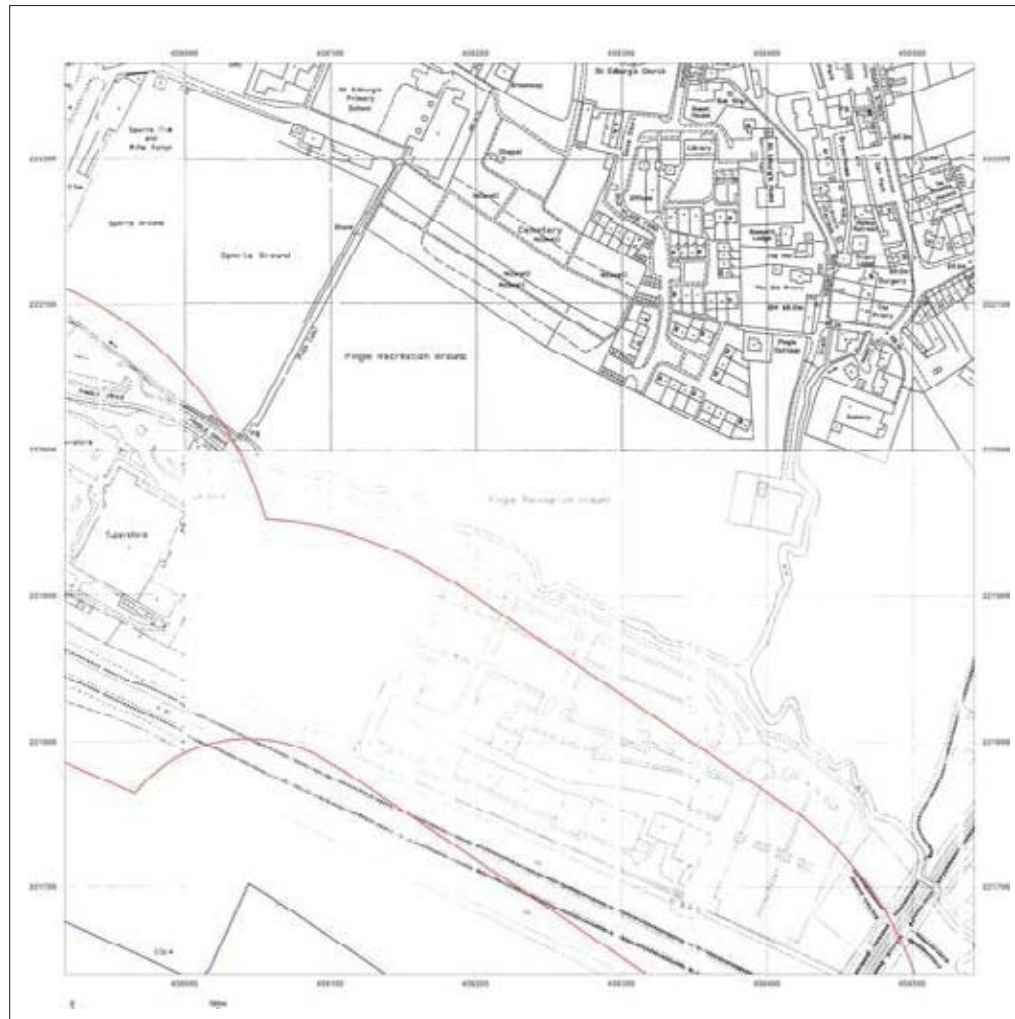


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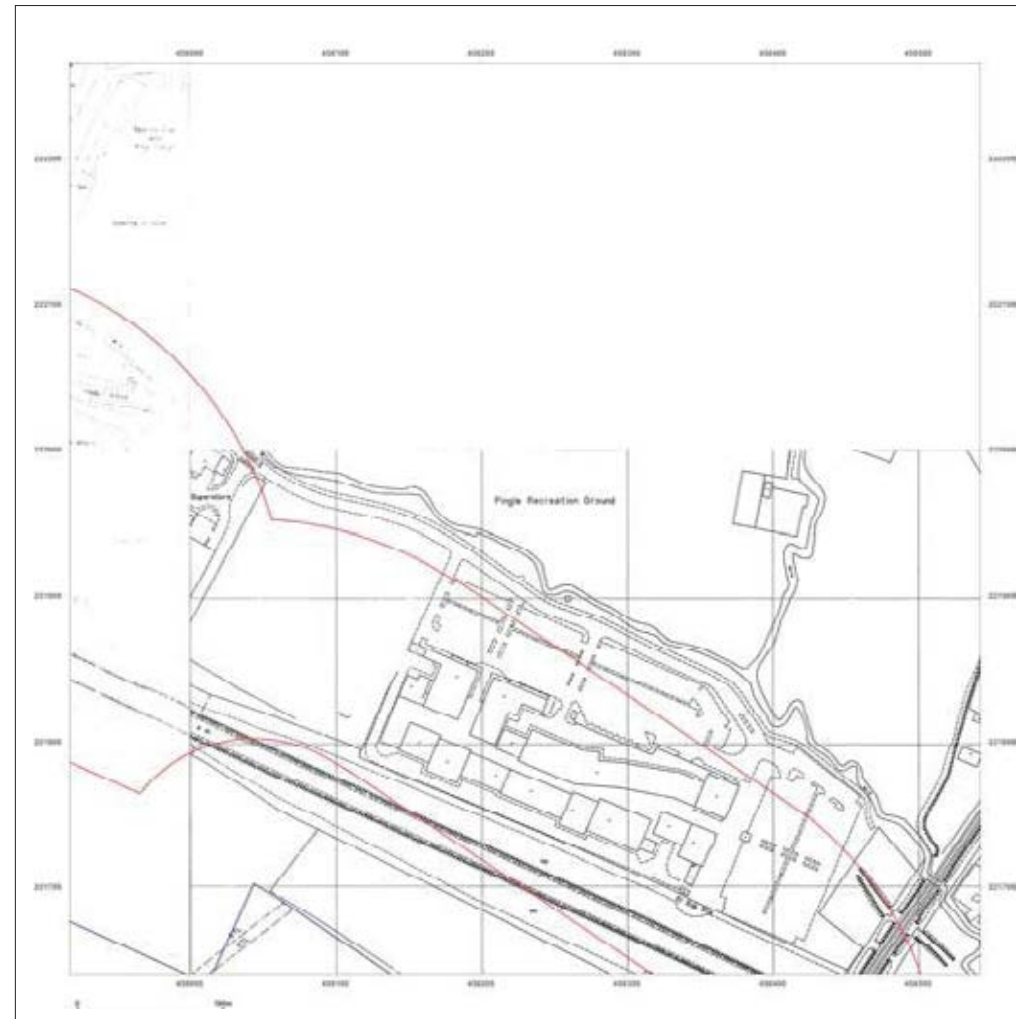


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# ES Volume II: Technical Appendices

## Appendix 2.2: EIA Scoping Opinion

# Public Protection & Development Management

Andy Preston – Head of Public Protection & Development Management



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2<sup>nd</sup> August 2017

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Please ask for: Matthew Parry

Direct Dial: 01295 221837

Email: [matthew.parry@cherwell-dc.gov.uk](mailto:matthew.parry@cherwell-dc.gov.uk)

Our Ref: 17/00001/SCOP

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Dear Mr Twemlow

## **TOWN AND COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) (ENGLAND AND WALES) REGULATIONS 2011 (as amended)**

### **Request for a Scoping Opinion**

**Application Number: 17/00001/SCOP**

**Applicant: DP9 Ltd**

**Proposal: Construction of a business park comprising between 55,000sqm and 60,000sqm of office development (Use Class B1) up to four storeys, parking for approximately 2000 cars, associated highway, infrastructure, landscaping and earthworks.**

**Address: Land North Of Bicester Avenue Garden Centre, Oxford Road, Bicester**

New regulations known as The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 came into force on 16<sup>th</sup> May 2017. This request for the Council to adopt an EIA scoping opinion was received prior to this date. In accordance with the transitional provisions contained within reg. 76 of the EIA Regulations 2017, the previous EIA Regulations 2011 (as amended) continue to apply in relation to development proposals where either an Environment Statement or request for a scoping opinion have been submitted prior to this date. As a result, this scoping opinion has been formed having regard to the EIA Regulations 2011 (as amended) and any Environmental Statement and planning application prepared in response to this scoping would be assessed having regard to the provisions within this previous legislation.

The Council has considered your request for it to adopt an EIA scoping opinion in relation to the abovementioned proposals. The Council has reviewed the information that you have provided in order to determine the potential for the proposed development to have significant environmental effects and those aspects of the environment likely to be affected. In doing so the Council has had regard to the provisions of reg. 13 of the EIA Regulations 2011 (as amended) as well as the criteria for determining the potential for significant environmental effects as set out in Schedules 3 and 4 to

those regulations. The Council has also consulted with the relevant statutory consultation bodies as defined in the EIA Regulations 2011 (as amended) and has had regard to the representations received.

Having considered the specific characteristic of the proposed development together with its scale, nature and location both individually and cumulatively with other committed development, the Council considers those aspects of the environment set out over the following pages need to be addressed as part of an EIA and therefore included within an Environmental Statement (ES) that accompanies a planning application. Notwithstanding those environmental effects that the Council considers should be assessed through EIA, an ES needs to include all other relevant information as set out in Parts 1 and 2 of Schedule 4 to the EIA Regulations 2011 (as amended).

The Council expects to see the main environmental effects arising from the proposed development considered against the baseline conditions both during its construction and in its operational stage including, where necessary, up to a point 15 years post completion of the development. Where any potentially significant environmental impacts are identified at any stage, measures to avoid, mitigate and/or remedy them should be set out in the ES. Any resulting residual impacts should then be assessed to determine their resulting environmental significance.

The Council expects an EIA for the proposed development to not only assess the potential for significant environmental effects resulting from these proposals alone but also the potential for significant cumulative effects when considered together with other relevant major developments that are approved, allocated or proposed in the surrounding area and which are likely to progress within a similar timeframe. An ES should also include a clear and concise conclusion as well as a non-technical summary. The Council has had regard to Government guidance contained within the Planning Practice Guidance (in particular ref ID: 4-036-20170728) which states that only the main or significant potential environmental effects to which a development is likely to give rise should be addressed. The ES should therefore be proportionate and not any longer than is necessary to properly assess those effects. As a consequence, those impacts which have little or no significance for the proposed development will need only very brief treatment in an ES to indicate that their possible relevance has been considered.

Broadly speaking the Council is in general agreement with the scoping report that accompanied your scoping request. However, in the Council's view there are some specific potential impacts that need to be addressed as part of an EIA. For ease and clarity, the Council sets out as follows those aspects of the environment that it believes could be significantly adversely affected by the proposed development and which should be addressed through EIA. Those aspects of the environment not listed below are therefore considered to be unlikely to be significantly affected and can be 'scoped out' for the purposes of EIA.

#### Transport

The EIA regulations are clear that social impacts including impacts on the local population are environmental effects that may need to be addressed as part of an EIA if the impacts are potentially significant. The Council considers the impact on the local transport network to be an environmental effect that needs to be addressed. This includes both the likely individual traffic and transport implications of the proposals as well as the cumulative impact when taken together with committed development in the surrounding area.

The outline scope of assessment as suggested by the scoping report has listed a number of junctions to consider for capacity modelling which is considered to be broadly appropriate for EIA purposes. In addition to these, the Rodney House roundabout, A41 / Vendee Drive / Oxford Road (A41) roundabout and Oxford Road / Middleton Stoney Road / Kings End roundabout should also be included. It is also suggested that a future assessment year of 2026 should be considered rather than the 2022 proposed so that it more accurately assesses the environmental impacts of the proposed development closer to its completion and thus when having its full effect. The Bicester Transport Model 2026 should be used to model the traffic flows and regard should be had to planning permissions recently granted under 16/02505/OUT and 16/02586/OUT where these are not captured within the model.

Also, it is felt appropriate that subsequent applications should include impacts on all pedestrian infrastructure, connectivity and other informal access routes within the redline and in the vicinity of the development as well as the users of those resources. This includes walkers, cyclists and equestrians - some of whom may have disabilities or are accompanied by children, wheel or pushchairs and dogs. As well as mitigating impacts the proposals should also look at opportunities for enhancements.

There will be transport effects, the most notable being the increase in traffic around the junctions in close proximity to the site particularly at peak periods. Overall, these increased traffic flows will potentially make conditions less pleasant for pedestrians and cyclists in the vicinity of the development. The scale of this negative effect and therefore what will be needed to mitigate it is impossible to judge without any attempt to quantify the scale of the increase in traffic as a result of the development.

It is essential that the cumulative transport impact of the proposed development is fully addressed with due regard taken of implications of other committed development (approved, under construction, allocated or with resolutions to grant) in the surrounding area that are likely to progress within the next five years. The list of schemes for assessment in table 1 on page 9 of the scoping report is considered broadly robust but care should be taken with schemes 1 and 6 which relate to the same allocated site. It is advised that the total development provided for by Policy Bicester 12 is included within assessments rather than that proposed in the related planning application which is not committed at this stage. I also note that only planning permission 16/02586/OUT is referenced within the table rather than the total development allocated through Policy Bicester 10. This planning permission relates to a small proportion of the allocated site and there is a reasonable prospect of further development taking place on the remainder of the land within the next several years and so should be addressed.

#### Landscape

The approach to assessing the landscape significance of the proposed development is broadly considered to be acceptable. With this development there will be cumulative landscape and visual effects due to the existing Tesco and Bicester Avenue developments, SW Bicester urban extension and Bicester Gateway Business Park (Bicester 10) The photography location plan is slightly blurred however viewpoints 1 -10 appear to be a representative reflection of the main visual receptor experience. However there are no photography locations from the Graven Hill residential development and future residential receptors should be considered here. Measures to visually mitigate this development with landscape buffers based on existing field boundary hedgerows and trees should be set out particularly where these are necessary to prevent significant adverse effects on the landscape. It is important to ensure the A41 frontage is of a high standard, for the purposes of landscape mitigation, site users, amenity and climate amelioration.

#### Heritage

There are no designated or non-designated heritage assets on the site and a limited number in the immediate vicinity. Given separation distances and intervening landscape features it seems unlikely that these heritage assets would have their setting or integrity either individually or cumulatively significantly adversely affected. The scope for assessment in this respect however seems appropriate in the scoping report. Buried heritage assets at the site are more likely to be affected and potentially this impact could be significant in the absence of a more detailed archaeological desk based and field evaluation to indicate otherwise. The approach to assessment of buried heritage assets as set out in the scoping report seems to be appropriate.

#### Ecology and Biodiversity

There are no statutorily or locally designated ecological sites within the site area though there is the potential for impact on designated ecological sites outside the site (Bicester Wetland Reserve LWS) as well as on protected and priority species. This should be considered both during construction and operational stages as well as the overall impact on biodiversity as a result of the proposed development. The approach to assessing the significance of the ecological implications is broadly considered to be appropriate though the Council is promoting the use of the DEFRA

based biodiversity metric used by Warwickshire County Council to assist in objectively determining the biodiversity impact of a proposed development and this should form part of the overall ecological assessment.

It should also be noted that as part of nearby development proposals the impact on otter, grass snakes and other reptiles has been considered. There are known records of otter within Langford Brook (including at the nearby Bicester Village Shopping Centre) and ditches on or near the site could form part of their habitat. Similarly, there are local records of grass snake and depending upon the characteristics of the habitat on the site they could be present. Surveys of these species should therefore be considered in addition to those described in the scoping report. The implications of cumulative loss of agricultural land on farmland bird priority species should also be addressed.

#### Noise and Vibration

It is agreed that it is appropriate to give consideration to these effects, particularly on nearby residential receptors, as part of the EIA. This should include both construction and operational impacts. The scope of these assessments as set out in the scoping report is considered to be suitable.

#### Air Quality

The Council has a statutory duty under the Environment Act 1995 (as amended) to review and address air quality where it reaches potentially harmful levels. It is also a material planning consideration. The Council has designated an Air Quality Management Area (AQMA) in close proximity to the site known as the Cherwell District Council Air Quality Management Area No. 4 which includes the nearby Kings End and Queens Avenue roads leading towards Bicester town centre. It is the Council's objectives to reduce harmful pollutants within this area of which road traffic is a major source. Both the individual and cumulative impact of the development on air quality should be addressed as part of the EIA both during construction and once operational. Construction vehicles are likely to emit higher levels of nitrogen oxide and particulate matter relative to the motor vehicles likely to be used by employees/visitors to the business park once operational. The air quality effects of the proposed development should be considered both in terms of the likely effect on human health as well as ecology. The scope of the assessment as set out in the scoping report is considered to be broadly appropriate. For clarity however, where it states 'Opening Year', the Council would expect this to be based on the opening of the completed development rather than partial occupation of the proposed development. Clarification of the opening year is important as if unrealistic it may not properly take account of the stages of construction of committed development. Furthermore, unlike residential development, the rate of occupation of floorspace within commercial developments of this nature can vary significantly depending on the vitality and interest within the relevant market.

#### Cumulative Environmental Effects

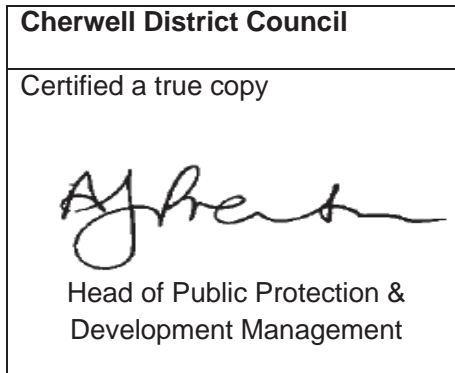
In accordance with Schedule 4 of the EIA Regulations 2011 (as amended), an ES should include a description of the likely significant effects of the proposed development on the environment including any cumulative direct and indirect effects. In order to robustly assess the environmental implications of the proposed development the Council considers that the developments set out in table 1 of the scoping report should be taken into account (including the entirety of development allocated through Policies Bicester 10 and 12 rather than the associated planning applications/permissions) when considering the overall potential for significant environment effects in comparison to the baseline.

#### Alternatives

In order for an EIA to be considered truly robust, it should also include a description of the alternative approaches considered as part of efforts to avoid or reduce the environmental effects identified through the EIA together with main reasons as to why the proposed approach has been taken rather than the alternatives.

I trust the contents of this letter are of assistance to you in clarifying the necessary scope of an EIA. This letter should be treated as the Council's formal scoping opinion made pursuant to reg. 13 of the EIA Regulations 2011 (as amended). A copy of this scoping opinion shall be made publicly available in accordance with reg. 23 of the EIA Regulations 2011 (as amended).

Yours sincerely



**From:** Tim Screen  
**Sent:** 20 June 2017 11:37  
**To:** Matthew Parry  
**Subject:** 17/00001/SCOP - Land North Of Bicester Avenue Garden Centre Oxford Road Bicester

Matt

With this development there will be a cumulative of landscape and visual effects due to the existing Tesco and Avenue development – as identified in the EIA Scoping Report . Measures to visually mitigate this development with landscape buffers based of existing field boundary hedgerows and trees. It is important to ensure the A44 frontage and site interior landscaping is of a high standard, for landscape mitigation, site users, amenity and climate amelioration.

The Photography location plan is slightly blurred with the printing, however I confirm that Viewpoints 1 -10 appear to be a representative reflection of the visual receptor experience.


I notice that there are no photography locations from Graven Hill residential development. Future residential receptors should be considered here. Viewpoints should be proposed by the landscape consultant.

Regards.

Tim

**Tim Screen** CMLI  
**Landscape Architect**

Cherwell District & South Northants Councils

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 01295 221878

<mailto:tim.screen@cherwellandsouthnorthants.gov.uk>

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This department has the following response to this application as presented:

**Noise:** Happy with the proposed scope for the noise assessment reports.

**Contaminated Land:** Conditions attached to planning permission will be required to ensure that the site investigation as required by the phase 1 Environmental Risk assessment is carried out as it has been scoped out of the EIA.

**Air Quality:** Happy with the proposed scope for the noise assessment reports.

**Odour:** Whilst not part of this scoping there is a chance that the future users of the business park could be affected by odour from the neighbouring sewage works and complaints about this could impinge on the future use of the works. The developers should be aware of this and be in discussion with Thames Water regarding the matter and possible mitigation.

**Light:** No comments

Kind Regards

Neil Whitton  
Environmental Protection Officer  
Cherwell District Council and South Northamptonshire Council  
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Email - [Neil.Whitton@cherwellandsouthnorthants.gov.uk](mailto:Neil.Whitton@cherwellandsouthnorthants.gov.uk)

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## OXFORDSHIRE COUNTY COUNCIL'S RESPONSE TO CONSULTATION ON THE FOLLOWING DEVELOPMENT PROPOSAL

**District:** Cherwell

**Application No:** 17/00001/SCOP

**Proposal:** Scoping Opinion for the construction of a commercial scheme

**Location:** Land North Of Bicester Avenue Garden Centre Oxford Road Bicester

---

### Purpose of document

**This report contains officer advice in the form of technical team response(s).**

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**District:** Cherwell  
**Application No:** 17/00001/SCOP  
**Proposal:** Scoping Opinion for the construction of a commercial scheme  
**Location:** Land North Of Bicester Avenue Garden Centre Oxford Road Bicester

---

## Transport

### Legal agreement required to secure:

Should planning permission be granted for this application then S106 and S278 agreements will be needed to ensure that it is acceptable in planning terms. The agreements would cover such things as new site accesses, off site transport network improvements, new and enhanced existing bus services, travel plan monitoring etc.

### Detailed comments:

The applicant has requested for a Scoping Opinion under Regulation 13 of the EIA Regulations. In the Scoping Report, the applicant has identified some of the main or likely significant environmental effects, to be assessed within a range of topics which include construction and transport before a final decision is taken on design.

This EIA scoping opinion is on land which forms part of an approved outline application (Ref: 07/01106/OUT) for the construction of a 60,000sqm B1 office park comprising 53,000sqm of B1 office space and a 7,000sqm C1 hotel. Planning consent was subsequently granted in 2013 for the construction of a Tesco foodstore of 8,135 sqm and petrol filling station on part of the consented office park site (Planning Ref: 12/01193/F).

However, OCC was consulted for pre-application advice on this development and a copy of our response dated 9<sup>th</sup> May 2017 is attached. The advice therein is considered relevant to this scoping request and the applicant is hence advised to make reference of it when writing the TA.

The outline scope of assessment as suggested by the scoping report has listed a number of junctions to consider for capacity modelling. In addition to these, we would like to see Rodney House roundabout included.

It was also suggested that a future assessment year of 2026 should be considered rather than 2022 proposed here.

Also, it is felt appropriate that subsequent applications should include impacts on all pedestrian infrastructure, connectivity and other informal access routes within the redline and in the vicinity of the development - as well as the users of those resources. These include walkers, cyclists and equestrians - some of whom may have disabilities or are accompanied by children, wheel or pushchairs and dogs. As well as mitigating impacts the proposals may also look at opportunities for enhancements.

There will be transport effects, the most notable being the increase in traffic around the junctions in close proximity to the site particularly at peak periods. Overall, these increased

traffic flows will potentially make conditions less pleasant for pedestrians and cyclists in the vicinity of the development. The scale of this negative effect and therefore what will be needed to mitigate it is impossible to judge without any attempt by the applicant to quantify the scale of increase of traffic as a result of the development.

### Previous Pre-app Response below

=====  
**District:** Cherwell

**Application No:** 17/CH0005/PREAPP

**Proposal:** The construction of an office park providing up to 57,000 square metres of B1 office space.

**Location:** Bicester Office Park. Land To South And East Of The A41 Oxford Road, Bicester, Oxfordshire

---

## Transport

Oxfordshire County Council is a consultee of the local planning authority and provides advice on the likely transport and highways impact of development where necessary.

It should be noted that the advice below represents the informal opinion of an officer of the council only, which is given entirely without prejudice to the formal consideration of any planning application, which may be submitted. Nevertheless the comments are given in good faith and fairly reflect an opinion at the time of drafting given the information submitted.

### Key issues:

- Strategic contribution towards the South Eastern Perimeter Road

### Legal agreement required to secure:

If a planning application were to be submitted and approved a S278 would be required to deliver any highway improvements that it was decided would be needed to make the development acceptable e.g. new site access junction, footway improvements.

A new S106 agreement would be needed to secure the S278 works and also a financial contribution towards

- (i) Public transport improvements and
- (ii) Strategic contribution towards the delivery of the South East Link Road- required to mitigate the development's impact on the A41 junctions

Travel Plan monitoring fees shall be required

### Informatives:

Please note the Advance Payments Code (APC), Sections 219 -225 of the Highways Act, is in force in the county to ensure financial security from the developer to off-set the frontage owners' liability for private street works, typically in the form of a cash deposit or bond.

Should a developer wish for a street or estate to remain private then to secure exemption from the APC procedure a 'Private Road Agreement' must be entered into with the County Council to protect the interests of prospective frontage owners. For guidance and information on road adoptions etc. please email the County's Road Agreements Team at [roadagreements@oxfordshire.gov.uk](mailto:roadagreements@oxfordshire.gov.uk)

### **Detailed comments:**

The A41 from which the site is accessed is heavily trafficked and will be put under further pressure from Cherwell Local Plan growth allocations, including the allocation on this site (Bicester 4).

This was recognised by Bicester Village in their application for Phase 4 of their development, where they are now delivering major highway improvements at and between the Esso roundabout and Pingle Drive junctions, having also provided a Bicester Park and Ride facility.

The highway works which are currently underway on the A41 (and related to the expansion of Bicester Village) will deliver a new bus layby on the northbound side of the A41. The highway works which are related to the construction and use of the permitted Bicester Business Park would, once they are triggered (i.e. once construction begins), also provide a northbound and southbound bus layby. Clearly as the Bicester Village works are already underway, once construction of any permission granted for the business park begins, its corresponding remaining liability would be to provide the southbound layby (as the northbound will have by then been delivered).

### **Scoping Note**

Having had a chance to look at the Scoping Note dated 19<sup>th</sup> April 2017 for a Transport Assessment, I wish to make the following comments.

### **Policy Consideration**

Various Policies that should be considered relevant to this development are:

#### National Policies

- National Planning Policy Framework (NPPF)
- National Planning Practice Guidance (NPPG)

#### Local Policy Context include

- Connecting Oxfordshire 2015-2031 (LTP4)
- The Cherwell Local Plan (Adopted July 2015) from which the Policy Bicester 4 requires;
  - Layout that enables a high degree of integration and connectivity between new and existing development particularly the mixed use urban extension at South West Bicester to the west, the garden centre to the south, and, to the north, Bicester town centre and Bicester Village retail outlet.
  - Provision for safe pedestrian access from the A41 including facilitating the crossing of the A41 to the north and west, and the provision and upgrading of footpaths and cycleways that link to existing networks to improve connectivity generally and to develop links between this site, nearby development sites and the town centre.
  - Good accessibility to public transport services should be provided for, including the accommodation of new bus stops to link the development to the wider town.

- A Transport Assessment and Travel Plan to accompany development proposals.

### **Area of Impact and Junction Modelling**

The scoping note accompanying this pre-application enquiry proposes to consider the following junctions for assessment

- Oxford Road / Pingle Drive Roundabout
- Oxford Road / A41 signalised roundabout
- Site Access (Oxford Road / A41 Lakeview Drive signalised junction)
- Oxford Road (A41) / Kingsmere signalised junction.

As previously mentioned in our telephone conversation on 26<sup>th</sup> April, in addition to the above junctions, the Transport Assessment will need to look at a wider study area to include;

- A41 / Vendee Drive / Oxford Road (A41) roundabout and
- Oxford Road / Middleton Stoney Road / Kings End roundabout
- Rodney House roundabout junction.

These junctions further afield are critical, likely to be impacted by the whole of Bicester 10 when it comes forward and Bicester 4 and the TA shall be expected to carry out capacity tests demonstrating the effect of the development on the highway network.

The scoping note under section 4.4 mentions that traffic surveys shall be undertaken during a weekday morning and evening peak period. The weekend peaks on the A41 approaching Bicester are very high. Owing to the adjacent land use particularly Bicester Village and Tesco superstore, in terms of the effect of the proposal on traffic at the Saturday and Sunday peak times, it would add to the already high volume of retail development traffic in the area. I would like to see further justification of not including a weekend assessment.

### **Future Years**

Paragraph 4.5 of the Scoping Note sets a future year assessment to the fifth year after submission of the Transport Assessment – which puts it down to 2022. In my view, I feel this period should be extended to cover 2026 in line with the Bicester Transport Model which includes 2024 interim year and also includes the committed development expected to come forward at that time. We would like this to be the forecast year rather than 2022.

Committed development – Use of the Bicester Transport Model 2026 would include all development expected to come forward by that time. Consideration also needs to be given to two pending planning applications close by to the site, which are both proposing highway mitigation works along the A41. These are;

- 16-02505-OUT – Bicester Gateway (Kingsmere Retail)
- 16-02586-OUT – Bicester Gateway (Bicester 10)

The model includes significant committed developments expected to come forward and including the growth trips. Should the model be used, TEMPRO shall not be required in this case.

We shall however like to see the network tested using the flows from the model.

### **Trip Generation**

The scoping note accompanying this pre-application enquiry proposes to use TRICS database to establish an estimate of the number of vehicles that the proposed development might generate when it is fully occupied.

I appreciate that the scoping note submitted attempts to estimate the likely number of trips generated that shall be generated by the development. However, the trip rates used appear rather low especially in the PM peak. I would further appreciate that a trip rates commensurate to the developments close by to be considered, such as ones used in planning ref: 16-02586-OUT.

Characteristics of business parks are likely to have very high levels of car use and very peaky demand for travel. The Oxford Business Park (Garsington Road) certainly displays these characteristics, which results in very long queues and delays when employees decide to leave at the same time (at 1705, for example). Arguably, similar characteristics could be expected on this site, especially when combined with the late Friday afternoon flow from the Tesco store. Will these characteristics be reflected in a TA – what mitigation can be provided – to spread the peak for example.

#### Other scoping matters

Public Transport - The applicant will need to robustly assess public transport accessibility between the development site and the wider network. The original application included a requirement to provide a pair of bus stops on the A41 and an agreement to provide some S106 funding to provide a bus service into the site.

The bus stops have not been fully delivered, with a new bus stop having recently been installed on the western side of the A41, to the north of the Premier Inn hotel. I guess the bus stop on the eastern side of the A41 is tied up with the Bicester Business Park Legal Agreement. In any event, it is absolutely essential that this is provided.

That being said, the walking distance to these bus stops along the A41 from some of these workplace units could be around 750 metres. I would like to see how the applicant addresses the distance in the TA.

#### **South Eastern Perimeter Road (SEPR)**

The Local Transport Plan 4 Bicester Area Strategy proposes a South East Perimeter Road in Bicester, which will ease congestion on the A41 and also mitigate the development's impact on the A41 junctions. It is partly funded, but currently requires contributions to fund the western section proposed, so contributions towards this are likely to be a consideration in terms of mitigating the Bicester Business Park proposals. Other future developments in the area would also be expected to contribute.

The cumulative impact of development in Bicester will be severe if appropriate contributions are not secured from all development sites towards the strategic transport infrastructure required to mitigate the increased transport movements.

Strategic transport modelling demonstrates the benefits that the SEPR will bring to the A41 (Oxford Road):

- The A41 Oxford Road is a key corridor in Bicester where junctions along its length are impacted significantly as a result of the growth of Bicester, including Bicester 10. The Application Site is estimated to increase the proportion of peak hour traffic at the A41/Vendee Drive junction by between 7% and 8% in 2024.
- The SEPR has been identified as a key piece of strategic infrastructure that will bring direct relief to the A41 corridor, thereby facilitating improved operation of junctions directly impacted by Bicester 10.

- Modelling has demonstrated the benefits that the SEPR would bring to the A41. In the AM peak:
  - Over 1000 vehicles (pcu's) that would otherwise use the A41 Oxford Rd northbound through Vendee Dve would route via SEPR (eastbound)
  - Around 930 vehicles (pcu's) that would otherwise use A41 Boundary Way and turn left on A41 Oxford Rd southbound past Bic 10, would route via SEPR (westbound)
  - Therefore, over 1930 vehicles (pcu's) would use the SEPR that would otherwise route along A41 past the Bicester 10 site.

It is acknowledged however, that the capacity released on the A41 by the SEPR will itself encourage some traffic that might otherwise choose NOT to use the A41, to divert along the corridor. When taking diverted traffic into account, the net reduction in traffic on the A41 in the vicinity of the Bicester 10 site would be around 1130 pcu's.

#### **Car parking**

Sufficient car parking will need to be provided to ensure that there is no overspill onto surrounding roads or inappropriate use of the Park and Ride site. Designs and provision should take into account areas within the development that may be subject to inappropriate parking such as on green verge areas or turning heads. OCC requires 2.4m x 4.8m parking bays and 6m width of manoeuvrable space between parking rows. OCC parking standards for B1 Office developments also require 1 parking space per 30sqm GFA, to include about 6% of DDA per development unit.

Consideration of the interaction of car parking with other sites in the area e.g. acting as an overspill car parking area for Bicester Village (rather than Bicester Village visitors using the P&R) must also be made. A robust car parking management plan should be included in the Travel Plan.

#### **Cycle parking**

The county's cycle parking standards sets out how developers should provide sufficient secure and covered cycle parking for staff and visitors. Cycle parking should be easy to locate and as close to the buildings as possible, not only to make it as attractive to potential users as possible but also to allow natural surveillance from the building itself.

#### **Drainage**

A surface water drainage scheme for the site will need to be submitted with a planning application. This will be based on sustainable drainage principles and an assessment of the hydrological and hydro-geological context of the development, The scheme will need to include:

- Discharge Rates
- Discharge Volumes
- Maintenance and management of SUDS features (including details of who will be responsible maintaining the SUDS & landowner details)
- Sizing of features – attenuation volume
- Infiltration tests to be undertaken in accordance with BRE365
- Detailed drainage layout with pipe numbers (to include direction of flow)
- SUDS (list the suds features mentioned within the FRA to ensure they are carried forward into the detailed drainage strategy)
- Network drainage calculations (to prove that the proposals will work)
- Phasing plans

- Flood Risk Assessment

**Travel Plan**

A Travel Plan Statement meeting the requirements set out in the Oxfordshire County Council guidance document, Transport for New Developments; Transport Assessments and Travel Plans will be required for this application. It would need to be produced and agreed prior to first occupation.

Additionally, a Travel Information Pack would need to be submitted to and approved by the Local Planning Authority prior to first occupation. The first occupants of each development unit shall be provided with a copy of the approved Travel Information Pack.

**Officer's Name: Rashid Bbosa**  
**Officer's Title:** Transport Engineer  
**Date:** 09 May 2017

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Having considered the proposal's impact against criteria set out in National Planning Practice Guidance (EIA) it is concluded that the proposed development, as submitted, would only amount to an increase in GFA to the previously approved scheme and would not trigger the requirement for an EIA from a county council perspective. Any impacts on transport and county council services can be assessed at the full application stage.

**Officer's Name: Rashid Bbosa**  
**Officer's Title:** Transport Engineer  
**Date:** 03 July 2017

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**District:** Cherwell  
**Application No:** 17/00001/SCOP  
**Proposal:** Scoping Opinion for the construction of a commercial scheme  
**Location:** Land North Of Bicester Avenue Garden Centre Oxford Road Bicester

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**Archaeology**

**Key issues:**

The applicant's documentation states that a desk based assessment (DBA) will be prepared assessing the archaeological potential of the site. If an EIA is required then this DBA should be included within it. If an EIA is not required then the DBA will need to be submitted along with any planning application.

**Legal agreement required to secure:**

**Conditions:**

**Informatives:**

**Detailed comments:**

The applicant's documentation states that a desk based assessment (DBA) will be prepared assessing the archaeological potential of the site. If an EIA is required then this DBA should be included within it. If an EIA is not required then the DBA will need to be submitted along with any planning application.

This desk based assessment should be undertaken in line with the Chartered Institute for Archaeology standards and guidance including the submission of a written scheme of investigation to ensure that the scope of the assessment has been agreed.

It is likely that a programme of archaeological investigation will need to be undertaken ahead of the determination of any planning application for the site.

**Officer's Name: Richard Oram**  
**Officer's Title:** Planning Archaeologist  
**Date:** 26 June 2017

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**District:** Cherwell  
**Application No:** 17/00001/SCOP  
**Proposal:** Scoping Opinion for the construction of a commercial scheme  
**Location:** Land North Of Bicester Avenue Garden Centre Oxford Road Bicester

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## Economy and Skills

The socio-economic assessment should include all the main elements contained in the outline scope:

An assessment of the temporary socio-economic effects to include:

- Temporary employment created during the construction phase of the redevelopment;
- Gross value added to the local economy by the temporary construction employment; and
- Construction training opportunities.

An assessment of the permanent socio-economic effects to include:

- Employment generation, including direct jobs created on site and associated indirect/induced employment created through multiplier effects;
- Gross value added to the local economy by the net additional employment created;
- Training and skills development opportunities;
- Additional local spending by office workers; and
- The provision of amenity space for office users.

It would also be useful to see an assessment of apprenticeship opportunities both in the temporary and permanent socio-economic effects as well as the skills levels of employment opportunities.

**Officer's Name:** Sarah Beal  
**Officer's Title:** Economic Development Coordinator  
**Date:** 29 June 2017

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Date: 23 June 2017  
Our ref: 218555  
Your ref: 17/00001/SCOP



Mr Matthew Parry  
Cherwell District Council  
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T 0300 060 3900

**BY EMAIL ONLY**  
[Planning@cherwell-dc.gov.uk](mailto:Planning@cherwell-dc.gov.uk)

Dear Mr Parry

**Environmental Impact Assessment Scoping consultation (Regulation 15 (3) (i) of the EIA Regulations 2011 as amended): Scoping Opinion for the construction of a commercial scheme**  
**Location:** Land North Of Bicester Avenue Garden Centre Oxford Road Bicester

Thank you for your consultation dated and received by Natural England on 15<sup>th</sup> June 2017.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

The scoping request is for a proposal that does not appear, from the information provided, to affect any nationally designated geological or ecological sites (Ramsar, SPA, SAC, SSSI, NNR) or landscapes (National Parks, AONBs, Heritage Coasts, National Trails), or have significant impacts on the protection of soils (particularly of sites over 20ha of best or most versatile land), nor is the development for a mineral or waste site of over 5ha.

At present therefore it is not a priority for Natural England to advise on the detail of this EIA. We would, however, like to draw your attention to some key points of advice, presented in annex to this letter, and we would expect the final Environmental Statement (ES) to include all necessary information as outlined in Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) Regulations 2011. If you believe that the development does affect one of the features listed in paragraph 3 above, please contact Natural England at [consultations@naturalengland.org.uk](mailto:consultations@naturalengland.org.uk), and we may be able to provide further information.

Yours sincerely

Kathryn Davies  
Consultations Team

## Annex A – Advice related to EIA Scoping Requirements

### 1. General Principles

Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended), sets out the necessary information to assess impacts on the natural environment to be included in an ES, specifically:

- A description of the development – including physical characteristics and the full land use requirements of the site during construction and operational phases.
- Expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.
- An assessment of alternatives and clear reasoning as to why the preferred option has been chosen.
- A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the interrelationship between the above factors.
- A description of the likely significant effects of the development on the environment – this should cover direct effects but also any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects. Effects should relate to the existence of the development, the use of natural resources and the emissions from pollutants. This should also include a description of the forecasting methods to predict the likely effects on the environment
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.
- A non-technical summary of the information.
- An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.

It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the 'in combination' effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure should be included within the assessment.

### 2. Biodiversity and Geology

#### 2.1. Ecological Aspects of an Environmental Statement

Natural England advises that the potential impact of the proposal upon features of nature conservation interest and opportunities for habitat creation/enhancement should be included within this assessment in accordance with appropriate guidance on such matters. [Guidelines for Ecological Impact Assessment \(EclA\)](#) have been developed by the Chartered Institute of Ecology and Environmental Management (CIEEM) and are available on their website.

EclA is the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components. EclA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal.

The National Planning Policy Framework ([NPPF](#)) sets out guidance in S.118 on how to take account of biodiversity interests in planning decisions and the framework that local authorities should provide to assist developers.

#### 2.2. Internationally and Nationally Designated Sites

Natural England undertakes an initial assessment of all development consultations, by determining whether the location to which they relate falls within geographical 'buffer' areas within which development is likely to affect designated sites. The proposal is located outside these buffer areas and therefore appears unlikely to affect an Internationally or Nationally designated site.

However, it should be recognised that the specific nature of a proposal may have the potential to lead to significant impacts arising at a greater distance than is encompassed by Natural England's buffers for designated sites. The ES should therefore thoroughly assess the potential for the proposal to affect designated sites, including Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites and Sites of Special Scientific Interest (SSSI). Should the proposal result in an emission to air or discharge to the ground or surface water catchment of a designated site then the potential effects and impact of this would need to be considered in the Environmental Statement

Local Planning Authorities, as competent authorities under the provisions of the Conservation of Habitats and Species Regulations 2010 (the 'Habitats Regulations'), should have regard to the Habitats Regulations Assessment process set out in Regulation 61 of the Habitats Regulations in their determination of a planning application. Should a Likely Significant Effect on a European/Internationally designated site be identified or be uncertain, the competent authority (in this case the Local Planning Authority) may need to prepare an Appropriate Assessment, in addition to consideration of impacts through the EIA process.

Statutory site locations can be found at [www.magic.gov.uk](http://www.magic.gov.uk). Further information concerning particular statutory sites can be found on the [Natural England website](#).

#### 2.3. Protected Species

The ES should assess the impact of all phases of the proposal on protected species. Records of protected species should be sought from appropriate local biological record centres, nature conservation organisations, groups and individuals; and consideration should be given to the wider context of the site for example in terms of habitat linkages and protected species populations in the wider area, to assist in the impact assessment.

The conservation of species protected by law is explained in Part IV and Annex A of Government Circular 06/2005 *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System*. The area likely to be affected by the proposal should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES.

Natural England has adopted [standing advice](#) for protected species. It provides a consistent level of basic advice which can be applied to any planning application that could affect protected species. It also includes links to guidance on survey and mitigation.

Natural England does not hold comprehensive information regarding the locations of species protected by law, but advises on the procedures and legislation relevant to such species.

#### 2.4. Regionally and Locally Important Sites

The ES should thoroughly assess the impact of the proposals on non-statutory sites, for example Local Wildlife Sites (LoWS), Local Nature Reserves (LNR) and Regionally Important Geological and Geomorphological Sites (RIGS). Natural England does not hold comprehensive information on these sites. We therefore advise that the appropriate local biological record centres, nature conservation organisations, Local Planning Authority and local RIGS group should be contacted with respect to this matter.

#### 2.5. Biodiversity Action Plan Habitats and Species

The ES should thoroughly assess the impact of the proposals on habitats and/or species listed in the UK Biodiversity Action Plan (BAP). These Priority Habitats and Species are listed as 'Habitats and Species of Principal Importance' within the England Biodiversity List, recently [published](#) under the requirements of S14 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act 2006 places a general duty on all public authorities, including local planning authorities, to conserve and enhance biodiversity. Further information on this duty is available in the Defra publication '[Guidance for Local Authorities on Implementing the Biodiversity Duty](#)'.

Government Circular 06/2005 states that BAP species and habitats, 'are capable of being a material consideration...in the making of planning decisions'. Natural England therefore advises that survey, impact assessment and mitigation proposals for Habitats and Species of Principal Importance should be included in the ES. Consideration should also be given to those species and habitats included in the relevant Local BAP.

The record centre for the relevant Local Authorities should be able to provide the relevant information on the location and type of BAP habitat for the area under consideration.

### 3. Landscape, Access and Recreation

#### 3.1. Landscape and Visual Impacts

The consideration of landscape impacts should reflect the approach set out in the *Guidelines for Landscape and Visual Impact Assessment* (Landscape Institute and the Institute of Environmental Assessment and Management, 2013, 3rd edition), the *Landscape Character Assessment Guidance for England and Scotland* (Scottish Natural Heritage and The Countryside Agency, 2002) and good practice. The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. In this context Natural England would expect the cumulative impact assessment to include those proposals currently at Scoping stage. Due to the overlapping timescale of their progress through the planning system, cumulative impact of the proposed development with those proposals currently at Scoping stage would be likely to be a material consideration at the time of determination of the planning application.

The assessment should refer to the relevant [National Character Areas](#) which can be found on our website. Links for Landscape Character Assessment at a local level are also available on the same page.

#### 3.2. Access and Recreation

The ES should include a thorough assessment of the development's effects upon public rights of way and access to the countryside and its enjoyment through recreation. With this in mind and in addition to consideration of public rights of way, the landscape and visual effects on Open Access land, whether direct or indirect, should be included in the ES.

Natural England would also expect to see consideration of opportunities for improved or new public access provision on the site, to include linking existing public rights of way and/or providing new circular routes and interpretation. We also recommend reference to relevant Right of Way Improvement Plans (ROWIP) to identify public rights of way within or adjacent to the proposed site that should be maintained or enhanced.

### 4. Land use and soils

Impacts from the development should be considered in light of the Government's policy for the protection of the best and most versatile (BMV) agricultural land as set out in paragraph 112 of the NPPF. We also recommend that soils should be considered under a more general heading of sustainable use of land and the valuing of the ecosystem services they provide as a natural resource in line with paragraph 109 of the NPPF.

Soil is a finite resource that fulfils many important functions and services (ecosystem services) for society; for instance as a growing medium for food, timber and other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution. It is therefore important that the soil resources are protected and used sustainably. The Natural Environment White Paper (NEWP) *'The Natural Choice: securing the value of nature'* (Defra, June 2011), emphasises the importance of natural resource protection, including the conservation and sustainable management of soils and the protection of BMV agricultural land.

Development of buildings and infrastructure prevents alternative uses for those soils that are permanently covered, and also often results in degradation of soils around the development as result of construction activities.

This affects their functionality as wildlife habitat, and reduces their ability to support landscape works and green infrastructure. Sealing and compaction can also contribute to increased surface run-off, ponding of water and localised erosion, flooding and pollution.

Defra published a Construction [Code of Practice for the sustainable use of soils on construction sites](#) (2009). The purpose of the Code of Practice is to provide a practical guide to assist anyone involved in the construction industry to protect the soil resources with which they work.

As identified in the NPPF new sites or extensions to new sites for Peat extraction should not be granted permission by Local Planning Authorities or proposed in development plans.

General advice on the agricultural aspects of site working and reclamation can be found in the Defra [Guidance for successful reclamation of mineral and waste sites](#).

### 5. Air Quality

Air quality in the UK has improved over recent decades but air pollution remains a significant issue; for example over 97% of sensitive habitat area in England is predicted to exceed the critical loads for ecosystem protection from atmospheric nitrogen deposition ([England Biodiversity Strategy](#), Defra 2011). A priority action in the England Biodiversity Strategy is to reduce air pollution impacts on biodiversity. The planning system plays a key role in determining the location of developments which may give rise to pollution, either directly or from traffic generation, and hence planning decisions can have a significant impact on the quality of air, water and land. The assessment should take account of the risks of air pollution and how these can be managed or reduced. Further information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System ([www.apis.ac.uk](http://www.apis.ac.uk)). Further information on air pollution modelling and assessment can be found on the Environment Agency website.

### 6. Climate Change Adaptation

The [England Biodiversity Strategy](#) published by Defra establishes principles for the consideration of biodiversity and the effects of climate change. The ES should reflect these principles and identify how the development's effects on the natural environment will be influenced by climate change, and how ecological networks will be maintained. The NPPF requires that the planning system should contribute to the enhancement of the natural environment "by establishing coherent ecological networks that are more resilient to current and future pressures" ([NPPF](#) Para 109), which should be demonstrated through the ES.

# ES Volume II: Technical Appendices

## Appendix 6.1: Legislative and Planning Policy Context



### Legislative and Planning Policy Context

- 6.1 This policy review considers the relevant local, sub-regional and national planning policies, helping to form a clear understanding of the strategic regeneration aspiration for Cherwell and the wider sub-regional area.

#### National Planning Policy

##### *National Planning Policy Framework (2012)*

- 6.2 The NPPF (2012) is an important material consideration in the determination of planning applications. At the heart of the NPPF is a presumption in favour of sustainable development and paragraph 14 states that development proposals that accord with the development plan should be approved without delay. Where the development plan is absent, silent or relevant policies are out-of-date, permission should be granted unless *'any adverse impacts of doing so would significantly and demonstrably outweigh the benefits'*.

- 6.3 Paragraph 17 identifies a set of core land-use planning principles which should underpin plan-making and decision-taking, including:

- Proactively drive and support sustainable economic development to deliver homes, business and industrial units, infrastructure and thriving local places that the country needs; and
- Always seek to secure high quality design and a good standard of amenity for all existing and future occupants of land and buildings.

#### Local Planning Policy

##### *Cherwell Local Plan Part 1 (2015)*

- 6.4 The vision for Cherwell District over the plan period is:

*"By 2031, Cherwell District will be an area where all residents enjoy a good quality of life. It will be more prosperous than it is today. Those who live and work here will be happier, healthier and feel safer."*

- 6.5 As part of this key focus include creating a sustainable economy including through supporting sustainable rural economy, maintaining and improving town centres and creating sustainable communities. The plan identifies key challenges to achieving a sustainable local economy in Cherwell, these include:

- The 'knowledge economy' needs to grow;
- New employment sites are needed to meet modern business needs;
- Urban centres and existing employment areas need improving to retain and attract business;
- There is insufficient diversity in the local economy; and
- An overdependence on a declining number of manufacturing jobs exists.

- 6.6 Five Strategic Objectives (SO) are identified for developing a sustainable local economy. The most relevant of these includes SO1, which seeks to facilitate economic growth and employment, in addition to a more diverse local economy with emphasis on higher technology industries. SO3 aims to help disadvantaged areas, support an increase in skills and innovation, improve the built environment and make Cherwell more attractive to businesses by supporting regeneration.

- 6.7 Section B of the Cherwell Local Plan sets out policies for development in Cherwell across three themes. Theme one outlines five policies for developing a sustainable local economy. Policy SLE 1 provides guidance on

economic development in Cherwell and seeks to retain and protect existing employment sites, directing employment proposals to Bicester, Banbury and Kidlington,

- 6.8 Policy SLE 2 directs retail and other main town centre uses towards Banbury, Bicester and the village centre of Kidlington to support dynamic town centres. Policy SLE 3 supports growth in Tourism, whilst Policy SLE 4 and Policy SLE 5 seek to improve transport and connections and provide guidance on High Speed Rail 2, respectively.

- 6.9 These policies directly address the Strategic Objectives and identified key challenges to achieving a sustainable local economy in Cherwell.

##### *Local Plan Saved Policies (2007)*

- The Cherwell Local Plan Saved Policies document is significantly dated, covering the period up to 2001. There is noticeably less focus on sustainable development, with the principle objective of the plan to ensure the "maintenance of a strong local economy and the creation of jobs to ensure full employment of the residents of the district".
- Three of the five original employment policies remain saved which focus on employment allocations and employment in the smaller Cherwell villages and rural areas.

##### *South East Midlands Local Enterprise Partnership Strategic Economic Plan (2014)*

- 6.10 The Plan provides the Strategic Economic Plan for the South East Midlands (SEM), a national growth area spanning 11 local authorities and comprising around 1.7m people.

- 6.11 The vision for this plan is

*"To reinforce and develop the South East Midlands as one of the most innovative, successful and high performing economies in England by 2020."*

- 6.12 Eight strategic objectives are set out, with a focus on business productivity, skills, domestic and internal markets and infrastructure. The plan seeks to create economic success through combining the resources of social, private and public sector partners.

- 6.13 The Strategic Economic Plan (SEP) outlines that the key focus of the SEP is to reinforce and develop the SEM as one of the most innovative, successful and high performing economies in England by 2020. Additionally, SEMLEP seeks to accommodate a population increase of 151,400 through housing and employment delivery, resulting in gross value added rising by an estimated £10.8 billion above the current level of £38.6 billion by 2020/21.

- 6.14 The SEMLEP has a number of key aims that it seeks to achieve by 2020, as outlined at page three of the SEP Summary Document, namely:

- Build 24,400 new homes;
- Deliver 41,500 net new jobs;
- Attract and create 9,700 new businesses;
- Grow existing businesses;
- Increase inward investment from overseas and expand foreign trade;
- Increase the number of apprenticeships by 94,000 by 2020;
- Invest around £260m of public and private money in key strategic infrastructure projects; and

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- Raise the economic profile of SEMLEP, both nationally and internationally.

# ES Volume II: Technical Appendices

## Appendix 6.2: Baseline Conditions

### Socio-economic Baseline Conditions

6.1 The baseline assessment has been prepared through a desktop analysis of economic and social conditions, across a wide range of socio-economic indicators. The main thematic areas considered within the baseline assessment are as follows:

- Population and demographic change;
- Economic activity;
- Education and skills;
- Housing;
- Health conditions; and
- Deprivation and poverty.

#### Population and demographic change

- 6.2 The latest 2017 population estimates for the local impact area is 31,429, comprising 15,881 females and 15,546 males<sup>1</sup>.
- 6.3 The 2017 population estimate district impact area of Cherwell (district impact area) is around 147,900<sup>1</sup>. This is an increase of 2,300 from the 2015 Cherwell mid-year population estimate, which stood at 145,600<sup>2</sup>.
- 6.4 59.72% of Cherwell population are of working age (16 to 64 years). This is notably lower than the figure for the local impact area of 63.11%, but more comparable to the regional impact area (60.31%) and the national average of 60.21%.
- 6.5 As well as a higher than average proportion of working age people, the local impact area has a significantly lower proportion of the population who are of retirement age (15.45%), over 5% lower than the figure for Cherwell (20.52%) and the national average (20.89%)<sup>1</sup>.
- 6.6 In line with national trends, the population of Cherwell has been increasing steadily over the past 12 years. The population in Cherwell increased by 6,600 in the period 2010-2017<sup>1 2</sup>.
- 6.7 The estimated 2017 population for Cherwell is approximately 147,900, this is up from the 2015 of 145,600 and the 2010 figure of 141,300<sup>2</sup>, as outlined in Table 6B.1 below.

**Table 6B.1 Population trends in Cherwell and the UK 2000 – 2017<sup>1</sup>**

Year	Cherwell population	UK population
2005	135,000	58,685,500
2010	141,300	60,954,600
2015	145,600	63,258,400
2017	147,900	66,031,700

6.8 Between 2006 and 2010, it is estimated that 5,619 people migrated into Cherwell. Of these, 53% were workers and a further 18% were internal migrants from within the UK. This is a low level of migration when compared to other local authorities within the SEMLEP (regional impact area). For example, during the same period, Luton Borough Council had an influx of migrants more than four times as high as Cherwell (a total of 24,000). However, 41% of Luton's migrants were students compared to 13% of those migrating into Cherwell. The lower levels of migration into Cherwell may reflect there not being a university within the local authority<sup>3</sup>.

6.9 The population of Cherwell is predicted to increase to 153,000 by 2021, representing an increase of 7,400, or 4.8%, from the 2015 figure of 145,600<sup>4</sup>.

#### Economic activity

- 6.10 In 2011, 75.68% of Cherwell's working age population was economically active. This is comparable to the regional impact area figure of 73.91% (4.07% of which were unemployed), but considerably higher than the national average of 69.53%<sup>1</sup>.
- 6.11 In 2011, only 2.64% of the local impact area's economically active population were unemployed and 0.91% long-term unemployed, which is comparable to the Cherwell (2.84% and 0.91% respectively). These figures are notably lower than in the regional impact area, where 4.07% of the economically active population were unemployed (1.54% long-term) and across England and Wales, where 4.43% were unemployed, of which 1.74% were long-term<sup>1</sup>.
- 6.12 In 2017, 0.6% of Cherwell's population were claiming out of work benefits, which is significantly lower than the regional impact area (1.6%) and the Great Britain average (2%)<sup>5</sup>.
- 6.13 In 2015, across Cherwell, there was 82,000 jobs, at a density of 0.89 which is slightly higher than the rate across the UK of 0.83<sup>5</sup>. Jobs density represents the ratio of total jobs to the working population aged 16-64 years. For example, a job density of 1.0 would mean that there is one job for every resident aged 16 to 64, meaning there is a better job density at the district impact level than the national average.
- 6.14 Within Cherwell, the following sectors/clusters are particularly important for the local economy: low carbon, green technologies, automotive manufacturing and motor-sport, nanotechnology, bio-medical and bio-tech.<sup>6</sup>
- 6.15 This is also demonstrated by the 2011 Census, which showed that 16.66% of the population were engaged in professional occupations, 13.11% in associate professional and technical occupations and 11.76% in skilled trades in Cherwell<sup>7</sup>. In comparison, the local impact area had only 15.53% of the population working in professional occupation, compared to the national average of 17.34%. However, the local impact area has a higher than average proportion of the population working in sales and service occupations (10.35%) compared to district (8.78%), regional (8.07%) and national average (8.56%)<sup>7</sup>.

<sup>1</sup> Pitney Bowes (2017) GeoInsight,

<sup>2</sup> Office for National Statistics (2015) Mid-year Population Estimates

<sup>3</sup> East of England Local Government Association (EELGA) (2011) Migrant Labour in the South East Midlands Local Enterprise Partnership Area

<sup>4</sup> Office for National Statistics (2016) Population Predictions for Local Authorities

<sup>5</sup> National Online Manpower Information Service (NOMIS) (2017) Labour Market Profile – Cherwell

<sup>6</sup> SEMLEP (2014) Evidence Base for the Strategic Economic Plan

<sup>7</sup> Office for National Statistics (2011) 2011 Census

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- 6.16 In 2016, the average gross weekly pay for full time workers in Cherwell was £582, which is 7% higher than the national average of £541 per week<sup>5</sup>.
- 6.17 However, the gender-wage gap in Cherwell is significantly worse than the national average with females earning an average full time weekly wage of £476.90, which is 24% less than the average earning of a male in Cherwell (£627.80). In comparison, females earn on average 17% less than males across the UK<sup>5</sup>.
- 6.18 The average weekly wage for part time workers in Cherwell is also higher than the national average, with a weekly wage of £184.20 compared to £177.40 across the UK<sup>5</sup>.

## Education and skills

- 6.19 Table 6B.2 below outlines the qualification levels for people across all the impact areas. The proportion of those with no qualifications is lowest at the local impact area (17.51%), but both the district and regional impact areas also have a lower proportion of people with no qualifications (19.69% and 20.35% respectively) compared to the national average of 23.19%<sup>1</sup>.
- 6.20 The district impact area has the highest proportion of those with higher qualifications (level 4 and above) at 28.06%, with the local (26.24%) and regional (26.6%) both lower than the national average of 27.02%<sup>1</sup>.
- 6.21 Therefore, although the local impact area has the lowest level of those with no qualifications, it also has a lower proportion of people with higher qualification, with a higher proportion of people with level 1, 2 and 3 qualification than the wider geographies<sup>1</sup>.

Table 6B.2 Qualifications levels across the impact areas (2011 Census)<sup>1</sup>

Qualification level	Local Impact Area	District Impact Area	Regional Impact Area	National Level
No qualifications	17.51%	19.69%	20.35%	23.19%
Low – Level 1	16.97%	15.17%	14.89%	14.08%
Level 2	12.75%	11.65%	11.90%	12.12%
Level 3	16.79%	15.82%	16.19%	15.16%
High – Level 4 and above	26.24%	28.06%	26.60%	27.02%
Other qualification	5.59%	5.49%	6.16%	5.13%

## Housing

- 6.22 The 2011 Census revealed that the most common housing tenure at all the impact area geographies was for people to own their properties, with a mortgage or a loan. All three impact areas had a higher proportion of the population who own their own home with a mortgage or loan than the national average of 32.87%, with the highest proportion in the local impact area (47.13%)<sup>1</sup>.
- 6.23 Conversely, the local impact area had the fewest number of households which owned their property outright at 24.22%, this is 6.65% lower than the district impact areas and 6.39% lower than the national average<sup>1</sup>.

- 6.24 Although there is a comparable level of households privately rented from a landlord or letting agency across all geographies, there is a significantly lower proportion of people socially renting from the local authority at the local and district impact areas, both over 7% lower than the national average of 9.84%<sup>1</sup>. However, there was a higher proportion of households in other social rented accommodation at these impact areas (9.6%) compared to the national picture (8.31%)<sup>1</sup>.

Table 6B.3 Housing tenure proportions across all impact areas<sup>1</sup>

Housing tenure	Local Impact Area (%)	District Impact Area (%)	Regional Impact Area (%)	National Level (%)
Owned outright	24.22	30.87	28.35	30.61
Owned with a mortgage or loan	47.13	38.41	38.05	32.87
Private landlord or letting agency	14.31	14.64	14.42	14.84
Private rented: Other	0.94	1.59	1.36	1.42
Shared ownership	0.55	0.78	1.61	0.73
Social rented: Other	9.60	9.55	7.63	8.31
Social rented: Rented from council	2.26	2.56	7.37	9.84

- 6.25 In Cherwell in 2014, the medium house price was £245,000 this was up £25,000 (or 10.2%) from the 2013 average price of £220,000<sup>8</sup>. In comparison, the average house price across England in 2014 was £198,000<sup>9</sup>. As such, the average house price in Cherwell was 19.2% higher than the national average in 2014<sup>8</sup>.
- 6.26 The ratio of median house prices to gross annual workplace based earnings for Cherwell in 2015 was 8.92. This means the average house price was 8.92 times than the average annual earnings<sup>9</sup>.
- 6.27 The Strategic Housing Market Assessment for Cherwell and surrounding authorities was undertaken in 2007 and a further review and update was undertaken in 2012. This updates previous assessments and helps identify the correct level of future housing provision.
- 6.28 The SHMA sets out that there were 58,690 households in Cherwell in 2006, and this is expected to increase to 74,712 households in 2031<sup>10</sup>. This is a net increase of 1.1% households, or an annual average change of 641 households over the 25 year period<sup>10</sup>.

## Health conditions

- 6.29 Overall, the health of people in Cherwell is varied in computation to the England average.
- 6.30 Figure 6B.1 below shows the life expectancy for both men and women in Cherwell for 2012-2014. Each chart is divided into deciles by deprivation with the most deprived decile being on the left and the least deprived decile on the right. The steepness of the slope represents the inequality in life expectancy that is related to deprivation in Cherwell. If there were no inequality as a result of deprivation, the line would be horizontal.
- 6.31 For adults, life expectancy for both men and woman is slightly higher than the England average, male life expectancy in Cherwell is 80.2 years compared to 79.5 across England<sup>11</sup>. However, there is still a significant inequality in life expectancy for men and women in the most deprived areas of the local authority compared to

<sup>8</sup> Office for National Statistics (2015) House Price Statistics for Small Areas, 1995 to 2014

<sup>9</sup> Office for National Statistics (2015) Ratio of House Prices to Earnings by Local Authority District

<sup>10</sup> Cherwell District Council (2012) Strategic Housing Market Assessment

<sup>11</sup> Public Health England (2016) Cherwell Health Profile, 2016

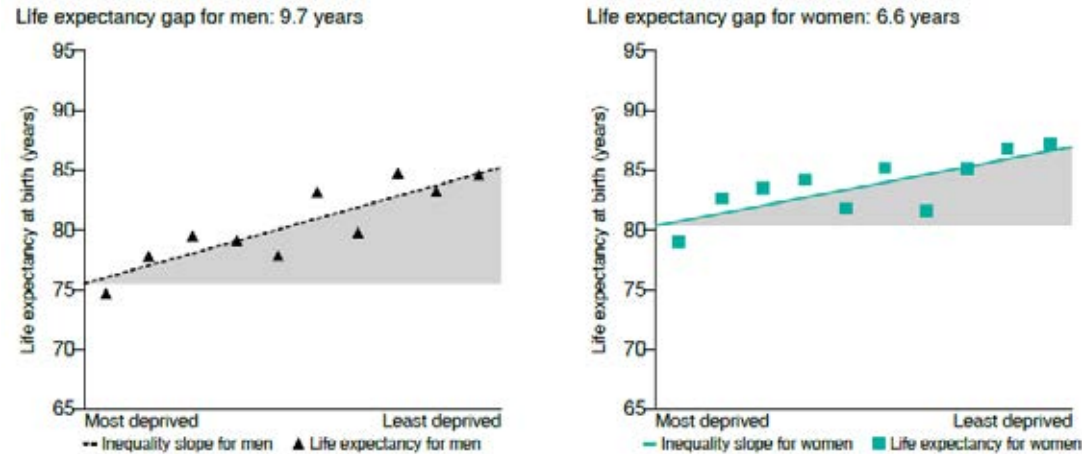
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the least deprived areas. Life expectancy for men is 9.7 years longer in the least deprived areas compared to the most deprived. This gap is slightly lower for women but still stands at a 6.6 year difference<sup>11</sup>.

**Figure 6B.1 – Life expectancy gaps in Cherwell 2011-2013<sup>11</sup>**



**6.32** Rates of infant mortality in Cherwell are significantly lower than the national average with rates of deaths in infants aged under one year at 2.2 per 1,000 live births in Cherwell between 2012 and 2014 compared to 4.0 across England<sup>11</sup>.

**6.33** The 2011 Census included a question that asked people to describe their general health over the preceding 12 months, by ranking their health from 'very good' to 'very bad'. Although a subjective method, this helps to identify the perceived health of the population of the local area in which the site is located.

**6.34** The 2011 Census self-assessment results illustrate that just over half of residents in both the local (52%) and district (50.3%) impact areas consider themselves to be in very good health<sup>7</sup>. The figure for the regional impact area is not as high at 48.5%, but is still higher than the national average of 46.6%<sup>7</sup>.

**6.35** Additionally, only 3.4% of people at the local and 3.8% at the district impact areas considered their health to be bad or very bad in 2011 compared to 5.6% across the nation as a whole<sup>7</sup>. Further information is provided below in Table 6B.4.

**Table 6B.4 2011 Census self-assessment of general health<sup>7</sup>**

Self-assessment of health	Local Impact Area (%)	District Impact Area (%)	Regional Impact Area (%)	National Level (%)
Very good health	52.0	50.3	48.5	47.6
Good health	34.7	34.7	35.4	33.6
Fair health	10	11.2	11.8	13.2
Bad health	2.7	3.0	3.3	4.3
Very bad health	0.7	0.8	0.96	1.3

### Deprivation and poverty

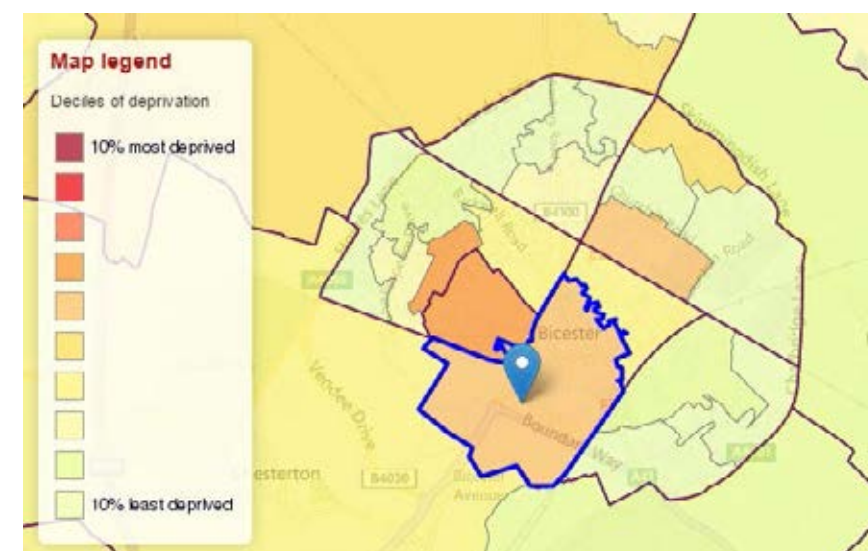
**6.36** The English Indices of Deprivation (EID 2015) enable comparisons to be made for a range of deprivation indicators at the small area level. The small areas, or neighbourhoods, are known as lower level super output areas (LSOAs) which on average contain around 1,500 people. There are 32,844 of these neighbourhoods across England as a whole<sup>12</sup>.

**6.37** The EID 2015 provides an overall index of multiple deprivation which is based on seven separate deprivation domains. Each deprivation domain is weighted, as shown below:

- **Income deprivation** – with a weighting of 22.5%;
- **Employment deprivation** – with a weighting of 22.5%;
- **Health deprivation and disability** – with a weighting of 13.5%;
- **Education, skills and training deprivation** – with a weighting of 13.5%;
- **Barriers to housing and services** – with a weighting of 9.3%;
- **Crime** – with a weighting of 9.3%; and
- **Living environment deprivation** – with a weighting of 9.3%.

**6.38** There are 19 of these LSOAs within the local impact area and 93 within the district impact area of Cherwell. The application site falls within Cherwell 015D which is ranked 15,783 out of 32,844 LSOAs in England (where 1 is the most deprived) on the IMD<sup>12</sup>. This makes it amongst the 50% most deprived neighbourhoods in England (see Figure 6B.2 below).

**Figure 6B.2 – Index of Multiple Deprivation<sup>13</sup>**



**6.39** In general, within the local impact area levels of income deprivation are around average compared to the

<sup>12</sup> Department for Communities and Local Government (2015) English Indices of Deprivation

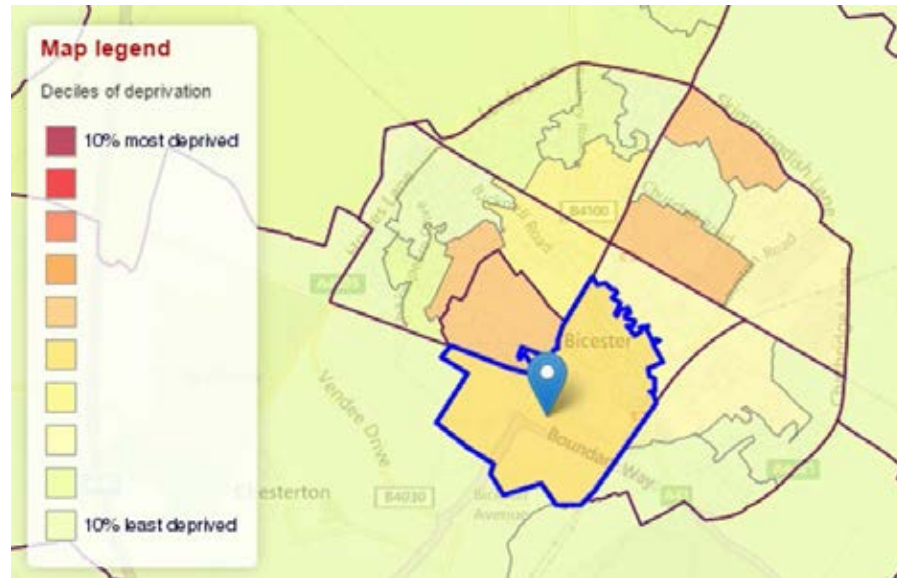
<sup>13</sup> Department for Communities and Local Government (2015) Indices of Deprivation Explorer

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national picture. Four LSOAs are within the 50% most deprived range and the remaining 15 LSOAs in the local impact area in the 50% least deprived or better.

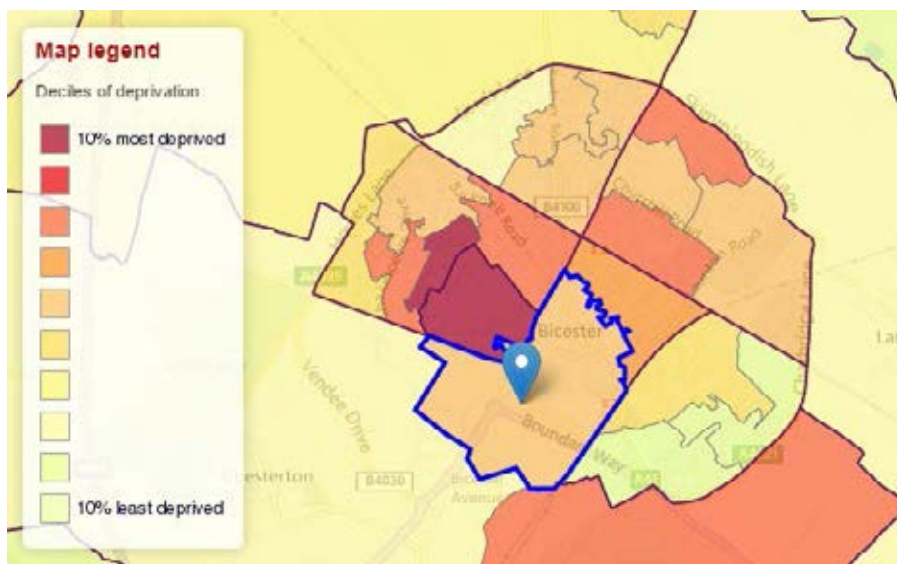
Figure 6B.3 Income Deprivation Domain Results for Bicester<sup>13</sup>



6.40 There is a similar picture for employment deprivation in Bicester, with all but three LSOAs being among the 50% least deprived areas in England or better<sup>12</sup>.

6.41 Levels of education, skills and training deprivation are, on average worse in the local impact area LSOAs compared to the national average, with two LSOAs being among the 10% most deprived areas in England<sup>12</sup>.

Figure 6B.4 Education, Skills and Training Domain Results for Bicester<sup>13</sup>



## Key messages

6.42 The key messages from the assessment of baseline conditions are as follows:

- **Population** – There is a higher proportion of working age people and a lower proportion of people of retirement age within the local impact area compared to the national average. However, the same figures for Cherwell are more comparable to the national average;
- **Housing** – Average house prices are significantly higher within the district impact area compared to the national average, yet more people still own their own home either outright or with a mortgage than the national average;
- **Employment** – A high proportion of the working age population in Cherwell are economically active, with good levels of job density and lower levels of unemployment and benefit claimants compared to the national average;
- **Health conditions** – Although health in Cherwell is generally better than the national average, there is a large gap between the life expectancy of people living in the most deprived and the least deprived parts of the local authority; and
- **Deprivation** – The local impact area is mixed with regard to deprivation, with a predominately better than average picture for employment and income deprivation but worse than average representation for education and skills deprivation.

# ES Volume II: Technical Appendices

## Appendix 7.1: Transport Assessment (TA)



## Document Control Sheet

Transport Assessment  
Bicester Office Park, Bicester  
Scenic Land Developments Ltd

This document has been issued and amended as follows:

Date	Issue	Prepared by	Approved by
23/08/2017	Draft	KL	DL
13/09/2017	Final	KL	DL
27/09/2017	Final Rev A	KL	DL
09/10/2017	Final Rev B	KL	DL
15/12/2017	Final Rev C	KL	DL

Bicester Office Park,  
Bicester

### Transport Assessment

For

Scenic Land Developments Ltd

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G	Proposed Junction Mitigation

## 1.0 Introduction

- 1.1 Motion has been appointed by Scenic Land Developments Ltd to prepare this Transport Assessment in relation to development proposals on land to the east of the A41 Oxford Road, Bicester within the administrative boundary of Cherwell District Council (CDC).
- 1.2 The site is currently undeveloped and is bound by the A41 Oxford Road to the west and Lakeview Drive to the north whilst Wyevale Garden Centre is located to the immediate south. The Bicester – Oxford railway line operates to the east and is separated from the site by undeveloped land.
- 1.3 The proposals comprise the redevelopment of the site to form up to 60,000 square metres (GEA) of B1(a)/B1(b) office space along with associated parking and landscaping. Vehicle access to the site would be via the two existing roundabout junctions on Lakeview Drive.

### Site History

- 1.4 Outline planning permission was granted in 2010 for the construction of a 60,000-square metre office park comprising 53,000 square metres of B1(a)/B1(b) office space and a 7,000-square metre C1 hotel, served by circa 1,837 car parking spaces (Planning Ref: 07/01106/OUT).
- 1.5 Detailed planning consent was subsequently granted in November 2013 for the construction of a Tesco food store of 8,135 square metres and petrol filling station on part of the consented office park site (Planning Ref: 12/01193/F). That planning application was supported by a Transport Assessment which considered the effect of the development proposals on the highway network local to the site. The Tesco store has since been constructed and opened in April 2016.
- 1.6 The S106 Deed of Variation in relation to the consented Tesco store and office park allows for the construction of up to 45,000 square metres of the B1(a)/B1(b) office space being delivered on the remainder of the site, as part of the previous outline planning consent for an office park.

### Development Proposals

- 1.7 The current planning application seeks outline planning consent, with all matters reserved except access, for the development of up to 60,000 square metres (GEA) of B1(a)/B1(b) office space. The development would be accessed from Lakeview Drive via two existing roundabout junctions.
- 1.8 The current development proposals would supersede and replace the previous outline consent for an office park on the site. In comparison with the previous outline planning consent for an office park on the site, the current site area excludes the portion of the site, north of Lakeview Drive, which has since been developed for a Tesco store. However, the site area now includes a parcel of land along the frontage of the A41 Oxford Road, south of Lakeview Drive, which was previously not within the applicant's ownership and was not part of the previous outline planning consent for an office park.

### Report Structure

- 1.9 This Transport Assessment has been prepared in accordance with national and local guidance and considers the highways and transport matters associated with the current development proposals and, in particular, the effect of the development proposals on the highway network local to the site.
- 1.10 A formal pre-application submission was made to Oxfordshire County Council (OCC) in April 2017 and a pre-application response was received from OCC in May 2017. A copy of the pre-application response is attached at [Appendix A](#).
- 1.11 This Transport Assessment has been prepared with reference to the pre-application response received from OCC and addresses the matters identified within that response.
- 1.12 A Framework Travel Plan has been prepared in association with the development proposals and this is submitted alongside the planning application, under separate cover.

- 1.13 Following this introduction, the remainder of this report comprises the following:
- ▶ Section 2 outlines the transport planning policies that are considered pertinent to this application;
  - ▶ Section 3 considers the existing use of the site and reviews the accessibility by all modes of transport;
  - ▶ Section 4 provides an overview of the proposed development;
  - ▶ Section 5 details the assessment methodology and the trip attraction of the development proposals;
  - ▶ Section 6 outlines the results of the junction modelling undertaken; and,
  - ▶ Section 7 summarises the key findings and conclusions of the report.

## 2.0 Policy Context

- 2.1 This section summarises the relevant transport policy documents against which the development proposals would be considered at a national, regional and local level. The most relevant policy documents relating to this study are detailed below:
- ▶ National Planning Policy Framework (March 2012);
  - ▶ Oxfordshire Local Transport Plan 2015-2031 (July 2015); and,
  - ▶ Cherwell Local Plan 2011-2031 (re-adopted December 2016).

### National Planning Policy

#### *National Planning Policy Framework (March 2012)*

- 2.2 The National Planning Policy Framework (NPPF) was published in March 2012, and replaces the previous national planning policies that were set out in the various Planning Policy Guidance Notes / Statements. With regard to transport, the NPPF replaces policy contained within PPG13 (Transport).
- 2.3 The NPPF sets out a presumption in favour of sustainable development that recognises the importance of transport policies in facilitating sustainable development, and that planning decisions should have regard to local circumstances. In this regard, paragraph 29 of the NPPF states that:
- 2.4 *"The transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel. However, the Government recognises that different policies and measures will be required in different communities and opportunities to maximise sustainable transport solutions will vary from urban to rural areas."*
- 2.5 Paragraph 32 states that:
- "Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."*
- 2.6 In order to promote opportunities for the use of sustainable travel, the NPPF advises that:
- ▶ *"..developments should be located and designed where practical to accommodate the efficient delivery of goods and supplies;*
  - ▶ *give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;*
  - ▶ *create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;*
  - ▶ *Incorporate facilities for charging plug-in and other ultra-low emission vehicles; and consider the needs of people with disabilities by all modes of transport."*

### Local Planning Policy

#### *Cherwell Local Plan 2011-2031 (December 2016)*

- 2.7 The Cherwell Local Plan is the key planning policy document within the district and sets out the overarching planning policies upon which planning applications will be determined.
- 2.8 Policy SLE 4 considers transport and connections and states:

*“All development where reasonable to do so, should facilitate the use of sustainable modes of transport to make the fullest possible use of public transport, walking and cycling. Encouragement will be given to solutions which support reductions in greenhouse gas emissions and reduce congestion. Development which is not suitable for the roads that serve the development and which have a severe traffic impact will not be supported.”*

- 2.9 The current application site is allocated within the Cherwell Local Plan under Policy Bicester 4 which sets out:

*“... This site to the south west of Bicester, bounded by the A41 to the north and west, is proposed for employment generating development in the form of a high-quality office scheme.*

- 2.10 It is further stated in paragraph C.65 that:

*“There is a sustainable opportunity for the provision of strategic employment space to the south of Bicester Town Centre and adjoining the A41. The Bicester Business Park site has planning permission for a 60,000m<sup>2</sup> business park incorporating offices (B1) and hotel (C1) use. This development area is located immediately to the east of the South West Bicester (Kingsmere) urban extension, less than 1 km from Bicester Village Railway Station and close to major retail uses and town centre facilities. The site has immediate access to the strategic highway network (Oxford-Aylesbury) with Junction 9 of the M40 motorway situated about 3 km to the south. Major growth is planned nearby with the redevelopment of Graven Hill (Policy Bicester 2: Graven Hill, phase 2 of the South West Bicester extension (Policy Bicester 3: South West Bicester Phase 2 and the expansion of the centre of the town.”*

#### Summary

- 2.11 It is evident that the policies set out within the NPPF and the Cherwell Local Plan focus on a presumption in favour of sustainable development and that development should only be resisted or refused on transport grounds where residual impacts of development are severe.
- 2.12 Furthermore, the application site is allocated for office use within the Cherwell Local Plan, confirming that the principle of office development is appropriate and in accordance with local planning policies.

### 3.0 Baseline Conditions

- 3.1 The site is located to the east of the A41, Oxford Road, and to the west of the Bicester – Oxford railway line. Both Bicester Village and town centre are located to the north of the site. The surrounding land uses comprise predominantly residential and retail uses with undeveloped land located to the east of the site.

- 3.2 The site location in relation to the surrounding area is shown in **Figure 3.1**.

#### Local Highway Network

- 3.3 Lakeview Drive forms the northern boundary of the site and the site would be accessed from Lakeview Drive via two existing roundabout junctions. The two existing roundabouts on Lakeview Drive, at the eastern end of Lakeview Drive and centrally on Lakeview Drive, currently include a southern arm on each roundabout which would form the vehicle accesses to the site. The roundabout at the eastern end of Lakeview Drive also provides access to the Tesco service yard while the central roundabout on Lakeview Drive also provides customer access to the existing Tesco store. At its western end, Lakeview Drive connects via the signalled controlled junction with the A41 Oxford Road. The A41 Oxford Road runs on a broadly north-south alignment and connects north to Bicester town and south to the M40.
- 3.4 North-east of the application site the A41 Oxford Road connects with the A41 at a junction known as the Esso roundabout. From the Esso roundabout, the A41 connects east towards Aylesbury. North of the Esso roundabout, Oxford Road connects north towards Bicester town centre.
- 3.5 As part of the consented development proposals for Bicester Village Phase 4 and the constructed Tesco store a significant package of highway works was approved and is currently under construction. The highway works included improvements to the Oxford Road junctions with Pingle Drive, Esso roundabout and Lakeview Drive.
- 3.6 Planning consent has recently been granted for a retail park scheme, known as ‘Bicester Gateway Retail Park’ on a site to the west of the A41 Oxford Road (Planning Ref: 16/02505/OUT). The consented development proposals at Bicester Gateway Retail Park include further improvements to the A41 junctions with Lakeview Drive and the Kingsmere development. The consented highway improvements associated with Bicester Gateway Retail Park also include the provision of a new bus stop and lay-by on the A41 Oxford Road just south of Lakeview Drive, directly adjacent to the current application site.
- 3.7 In addition, planning consent has recently been granted for a business park scheme known as ‘Bicester Gateway Business Park’ to the south of the current application site (Planning Ref: 16/02586/OUT). The consented development proposals at Bicester Gateway Business Park included improvements to the conventional roundabout junction between the A41 and Vendee Drive.
- 3.8 The Rodney House roundabout is situated to the north-east of the application site at the junction between the A41, the A4421 and London Road and currently forms a conventional roundabout. As part of consented development proposals at Graven Hill it is proposed that the Rodney House roundabout is upgraded to a signal controlled roundabout and it is understood that these works are scheduled to commence later this year.

#### Sustainable Transport Accessibility

- 3.9 It is generally accepted that walking and cycling provide important alternatives to the private car, and should also be encouraged to form part of longer journeys via public transport. Indeed, it is noteworthy that the Institution of Highways and Transportation (IHT) has prepared several guidance documents that provide advice with respect to the provision of sustainable travel in conjunction with new developments. Within these documents it is suggested that:

- ▶ Most people will walk to a destination that is less than one mile (Planning for Walking, 2015);

- ▶ The bicycle is a potential mode of transport for all journeys under five miles (approximately 8 kilometres) (Planning for Cycling, 2015); and,
- ▶ Walking distances to bus stops should not exceed 400 metres, whilst people are prepared to walk twice as far to rail stations (Planning for Walking, 2015).

3.10 The Institution of Highways and Transportation (IHT) 'Guidelines for Providing Journeys on Foot' (2000) suggests acceptable, desirable and preferred maximum walking distances ('acceptable' walking distances would vary between individuals). Table 3.1 summarises the suggested walking distances for pedestrians without mobility impairment for some common trip purposes.

	Town Centres	Commuting/Schools	Elsewhere
Desirable	200	500	400
Acceptable	400	1,000	800
Preferred Maximum	800	2,000	1,200

Source: 'Providing for Journeys on Foot', IHT, 2000

Table 3.1 Suggested Walking Distances (metres)

3.11 The following sections consider the opportunities for sustainable travel that are available in the vicinity of the site.

**Pedestrian and Cycle Network**

- 3.12 Footways are provided along both sides of Lakeview Drive adjacent to the site and these connect with footway along both sides of the A41 Oxford Road. Signalised pedestrian crossing facilities are provided at the junction between the A41 Oxford Road and Lakeview Drive and these provide a convenient crossing opportunity across both Lakeview Drive and the A41 Oxford Road.
- 3.13 The highway improvements currently under construction at the A41 Esso roundabout and the A41 junctions with Pingle Drive and the Kingsmere access include signal controlled pedestrian crossing facilities which connect to the wider pedestrian network in the vicinity.
- 3.14 In addition, the site is well located with regard to local footpaths which offer off-road connections to between the site and local villages including Wendlebury and Chesterton.
- 3.15 National Cycle Network Route 51 (NCN51), runs alongside the A41 Oxford Road directly past the application site. NCN51 provides a signed cycle route connecting south towards Wendlebury, Kidlington and Oxford. North of the application site, NCN51 connects to Bicester Village and Bicester Town Centre.
- 3.16 There are further signed cycle routes in the vicinity of the site which operate throughout Bicester as well as connecting to Audley, Poundon and Langford Village.
- 3.17 **Figure 3.2** summarises the local footpaths and cycle routes in the vicinity of the site.
- 3.18 It is evident that the pedestrian and cycle facilities in the vicinity of the application site provide connections to local retail opportunities, residential areas and public transport facilities in the vicinity of the site. It is therefore evident that the application site is well placed for future employees and visitors to undertake journeys to and from the site on foot or by cycle.

**Public Transport Network**

- 3.19 The nearest bus stop to the site is situated on the A41 Oxford Road northbound, just north of the junction between the A41 Oxford Road and Lakeview Drive. The northbound bus stop is an approximately 120 metre walk from the north-western corner of the application site and is accessible via the existing signal controlled pedestrian crossing facilities at the junction between A41 Oxford Road and Lakeview Drive. The bus stop is served by the S5 and X5 services. The S5 operates every 15 minutes Monday to Friday and every 30 minutes on Saturdays and Sundays between Oxford City Centre and Launton, as well as the Bicester Park & Ride facility. The X5 operates twice an hour on weekdays and hourly on weekends between Cambridge Parkside Bus Station and Oxford City Centre via Milton Keynes Railway Station.
- 3.20 There is not currently a southbound bus stop directly adjacent to the site. However, as part of highways works associated with the consented development proposals at Bicester Gateway Retail Park a new southbound bus stop and lay-by on the A41 Oxford Road would be provided. The new bus stop would be directly adjacent to the application site on the eastern side of the A41 Oxford Road. It is envisaged that the additional southbound bus stop would also be served by the S5 and X5 services
- 3.21 Additional bus stops are situated north of the Pingle Drive roundabout, approximately 500 metres north on Oxford Road and these are also served by the S5 and X5 services as well as the No. 26 bus service which provides a circular bus service between Bicester Town Centre, Kingsmere and Oxford Road.
- 3.22 A further bus stop is located on Pringle Drive approximately 800 metres to the north east and is served by the Bicester Village Shuttle operating towards Bicester North Railway Station.
- 3.23 The nearest station is Bicester Village Railway Station located approximately 1.4 kilometres to the north east of the site. Bicester Village Station is located on the Oxford to London Marylebone line with services operating in each direction every 30 minutes.
- 3.24 Bicester North Railway Station is located approximately 1.8 kilometres to the north of the site and offers connections to London Marylebone, Banbury and Birmingham Moor Street and Snow Hill. Services run up to twice per hour in each direction.
- 3.25 It is evident that the application site is well placed for access to public transport facilities and provides future employees and visitors to the site to undertake journeys by public transport.

**Personal Injury Accident Data**

- 3.26 Personal Injury Accident (PIA) data recorded in the immediate vicinity of the site has been obtained for the most recent five-year period available covering 01/07/2012 to 01/07/2017. Full details of the study area and accident records are attached at **Appendix B**. Over his period there were 47 incidents recorded of which 40 resulted in slight injury, 5 in serious injury and 2 resulted in fatality.
- 3.27 The incident reports in relation to the two incidents which result in a fatality, identify that they were as a result of a failure to judge other vehicle speeds and distraction within the vehicle. As such it is considered that the local highway layout was not a factor in either of these incidents.
- 3.28 It is noted that only one incident occurred at the junction between the A41 Oxford Road and Lakeview Drive. The report indicates that this incident resulted in slight injury and was caused by a driver disobeying automated traffic signals.
- 3.29 A review of the remaining accidents indicates that the identified causation factors were predominantly driver error or poor driver behaviour and, as such, are unrelated to the existing design or layout of the highway. As such, it is considered that there are no inherent safety issues associated with the existing highway in the vicinity of the site.

#### 4.0 Development Proposals

4.1 The current planning application seeks outline planning consent, with all matters reserved except access, for the development of up to 60,000 square metres (GEA) of B1(a)/B1(b) office space. Vehicle access to the site would be via the two existing roundabout junctions on Lakeview Drive. The parameters plan of the current outline application is attached at [Appendix C](#).

##### Site History

- 4.2 As previously highlighted, outline planning permission was granted in 2010 for the construction of a 60,000-square metre office park comprising 53,000 square metres of B1(a)/B1(b) office space and a 7,000-square metre C1 hotel, served by circa 1,837 car parking spaces (Planning Ref: 07/01106/OUT).
- 4.3 Detailed planning consent was subsequently granted in November 2013 for the construction of a Tesco food store of 8,135 square metres and petrol filling station on part of the consented office park site (Planning Ref: 12/01193/F). That planning application was supported by a Transport Assessment which considered the effect of the development proposals on the highway network local to the site. The Tesco store has since been constructed and opened in April 2016.
- 4.4 The S106 Deed of Variation in relation to the consented Tesco store and office park allows for the construction of up to 45,000 square metres of the B1(a)/B1(b) office space being delivered on the remainder of the site, as part of the previous outline planning consent for an office park.

##### Current Planning Application

- 4.5 The current development proposals seek outline planning consent for the construction of an office park providing up to 60,000 square metres of B1(a)/B1(b) office space.
- 4.6 The current development proposals would supersede and replace the previous outline consent for an office park on the site. In comparison with the previous outline planning consent for an office park on the site, the current site area excludes the portion of the site, north of Lakeview Drive, which has since been developed for a Tesco store. However, the site area now includes a parcel of land along the frontage of the A41 Oxford Road, south of Lakeview Drive, which was previously not within the applicant's ownership and was not part of the previous outline planning consent for an office park.

##### Access

- 4.7 Lakeview Drive forms the northern boundary of the site and vehicle access to the site would be taken from Lakeview Drive via two existing roundabout junctions. The two existing roundabouts on Lakeview Drive, at the eastern end of Lakeview Drive and centrally on Lakeview Drive, currently include a southern arm on each roundabout which would form the vehicle accesses to the site. The roundabout at the eastern end of Lakeview Drive also provides access to the Tesco service yard while the central roundabout on Lakeview Drive also provides customer access to the existing Tesco store.
- 4.8 Pedestrian footway is currently provided along both sides of Lakeview Drive adjacent to the application site and this extends along the exiting southern arms of the existing roundabout junctions. This footway would provide the main pedestrian access to the site and connects west to existing signal controlled pedestrian crossing facilities at the junction between Lakeview Drive at the A41 Oxford Road. In addition, it is proposed that a further pedestrian access is provided on the western boundary of the site with A41 Oxford Road. The additional pedestrian access would be positioned to coincide with the existing pedestrian crossing facilities on the A41 Oxford Road at its junction with the Kingsmere access, with materials to match with existing, subject to agreement with the local highway authority.
- 4.9 The proposed access arrangements to the site are summarised at the Highways Access Plan, attached at [Appendix D](#).

4.10 Given that the current application is outline, the internal site layout has not been designed at this stage. A parameters plan is attached at [Appendix C](#). Full details of the internal site layout including internal road layout and internal pedestrian network will be provided at the reserved matters stage and with consideration of local design guidance.

##### Parking

- 4.11 Car parking will be provided in accordance with OCC maximum parking standards. OCC parking standards allow the provision 1 space per 30 square metres of B1 office floor space. The proposed office park will therefore provide 2,000 car parking spaces to serve the development. The proposed car parking provision is in accordance with OCC parking standards and is considered appropriate to meet the needs of the development.
- 4.12 Traffic Advisory Leaflet 5/95 'Parking for Disabled People' advises that for employment uses providing over 200 car parking spaces, disabled parking should be provided at a ratio of 6 bays plus 2% of total capacity. Disabled parking will be provided in accordance with this guidance and based on the provision of 2,000 car parking spaces it is envisaged that 46 disabled car parking spaces will be provided.
- 4.13 Cycle parking will be provided in accordance with OCC standards and will provide a mixture of long-stay parking for employees and short stay parking for visitors. For B1 employment use, OCC standards require the provision of 1 cycle parking space per 150 square metres for long stay employee cycle parking and 1 space per 500 square metres for short stay visitor parking. On that basis, a total of 520 cycle parking spaces would be provided on site, comprising 400 long stay spaces and 120 short stay cycle parking spaces.

##### Servicing and Deliveries

- 4.14 Servicing and deliveries associated with the development, including refuse collection, will be undertaken on site and off the public highway.
- 4.15 Given that the current application is outline, the internal site layout has not been designed at this stage. A parameters plan is attached at [Appendix C](#). Full details of the internal site layout including internal road layout will be provided at the reserved matters stage and with consideration of local design guidance, vehicle requirements and with swept path analysis where required.

##### Proposed Highways Works

- 4.16 Following an assessment of the effect of the development proposals on the highway network local to the site, highway mitigation works have been identified at two junctions, namely; the A41 Oxford Road/ Lakeview Drive junction and the Oxford Road/ Middleton Stoney Road junction.
- 4.17 Further details of the assessment of the development proposals on the local highway network and the proposed off-site highways works are detailed at Section 6 of this Transport Assessment and drawings showing the proposed highway mitigation works are provided at [Appendix G](#).
- 4.18 The assessment has concluded that, subject to the identified highway mitigation works, the development proposals would not result in a material effect on the operation of the highway network local to the site. As such, no further mitigation measures or Section 106 obligation towards further transport schemes, such as the South Eastern Perimeter Road (SEPR), are considered necessary or justified in planning terms.

## 5.0 Assessment Methodology and Trip Attraction

5.1 This section of the report considers the expected trip attraction of the development proposals and the methodology for assessing the effect of the development proposals on the highway network local to the site.

### Scope of Assessment

5.2 As part of pre-application scoping discussions, Officers at OCC have requested that the following junctions be assessed as part of the Transport Assessment:

- ▶ Oxford Road (A41) / Lakeview Drive signalised junction;
- ▶ Oxford Road / A41 signalised roundabout;
- ▶ Oxford Road / Pingle Drive roundabout;
- ▶ Oxford Road / Middleton Stoney Road mini-roundabout;
- ▶ Oxford Road (A41) / Kingsmere signalised junction;
- ▶ A41 Oxford Road/ Vendee Drive; and
- ▶ A41/ A4421 Rodney House Roundabout.

5.3 As previously identified, highway improvement works are currently under construction at a number of the junctions listed above. In addition, further highway improvement works are consented at some junctions listed above in association with recently consented development proposals. The highway capacity assessment undertaken within this Transport Assessment considers the consented junction improvements at the junctions listed above.

### Baseline Traffic Flows, Consented Developments & Assessment Periods

5.4 As part of the pre-application scoping discussions Officers at OCC have requested that the assessment of the highway network local to the site be undertaken using traffic flow information provided from the Bicester Transport Model (BTM).

5.5 The BTM is based on a future assessment of 2026, 9 years in advance of the current application submission date. The assessment of a future baseline year 9 years after the submission of a planning application is considered a robust assessment of the local highway network. OCC have confirmed that the outputs from the BTM include all development expected to come forward in that period.

5.6 OCC have provided outputs from the BTM for the weekday morning and evening peak hours. BTM outputs provided by OCC are attached at **Appendix E**. In addition, **Figures 5.1 and 5.2**, attached, summarises the 2026 baseline traffic flows for the weekday morning and evening peak hours which will form the base for the assessment.

5.7 The current planning application is for a B1(a)/B1(b) office park and, as such, the primary effect of the development proposals on the highway network local to the site will be during the weekday morning and evening peak periods. Given the proposed office use of the site it is considered that outside these periods and, in particular during the weekend Saturday and Sunday peak periods, the development will attract negligible vehicle trips and, as such, would not have a material effect on the operation of the highway network at these times. As such, this Transport Assessment will consider the effect of the development proposals on the highway network during the weekday morning and evening peaks.

## Trip Attraction

5.8 The pre-application response from OCC requested that the expected trip attraction of the current development proposals be considered with reference to trip rates presented within the Transport Assessment supporting the recently consented development proposals at Bicester Gateway Business Park (Planning Ref: 16/02586/OUT).

5.9 Table 5.1 below summarises the vehicle trip rates and expected vehicle trips associated with the proposed 60,000 square metres of B1(a)/B1(b) office floorspace during the weekday morning and evening peak periods.

	Trip Rate (per 100sqm)			Total Trips (60,000sqm)		
	In	Out	Total	In	Out	Total
Morning Peak Hour	1.533	0.141	1.674	920	85	1,004
Evening Peak Hour	0.111	1.602	1.713	67	961	1,028

Table 5.1: Trip Rates and Vehicle Trips - Office Park

5.10 Table 5.1 demonstrates that the proposed development is expected to result in 1,004 vehicle trips during the morning peak hour and 1,028 vehicle trips during the evening peak hour.

5.11 As previously highlighted the application site has previously been subject to a planning application for an office park development with outline planning permission granted in 2010 for the construction of a 60,000-square metre office park comprising 53,000 square metres of B1(a)/B1(b) office space and a 7,000-square metre C1 hotel, served by circa 1,837 car parking spaces (Planning Ref: 07/01106/OUT). Detailed planning consent was subsequently granted in November 2013 for the construction of a Tesco food store of 8,135 square metres and petrol filling station on part of the consented office park site (Planning Ref: 12/01193/F). The Tesco store has since been constructed and opened in April 2016.

5.12 The planning application for the Tesco development was supported by a Transport Assessment which considered the effect of the Tesco development proposals on the highway network local to the site. The S106 Deed of Variation in relation to the consented Tesco store and office park allows for the construction of up to 45,000 square metres of the B1(a)/B1(b) office space being delivered on the remainder of the site, as part of the previous outline planning consent for an office park.

5.13 The Transport Assessment supporting the Tesco development proposals assessed the effect of 45,000 square metres of office park development coming forward on the current application site. To this extent, the junction between Lakeview Drive and the A41 Oxford Road has been designed and was previously assessed to accommodate traffic associated with up to 45,000 square metres of the B1(a)/B1(b) office space in addition to the constructed Tesco store. Furthermore, the Tesco Transport Assessment assessed the effect of up to 45,000 square metres of the B1(a)/B1(b) office space, in addition to the constructed Tesco store, on the highway network local to site. As such the highway improvements designed and under construction in relation to the Tesco development included consideration of 45,000 square metres of B1(a)/B1(b) office space on the application site.

5.14 It is therefore evident that the current outline planning application for 60,000 square metres of B1(a)/B1(b) office space comprise an additional 15,000 square metres of office space in comparison with that previously assessed on the local highway network as part of recently consented planning applications. Based on the vehicle trip rates provided a Table 5.1, Table 5.2 below summarises the additional trip generation of the current proposals over that previously assessed on the local highway network.

	Trip Rate (per 100sqm)			Total Trips (15,000sqm)		
	In	Out	Total	In	Out	Total
Morning Peak Hour	1.533	0.141	1.674	230	21	251
Evening Peak Hour	0.111	1.602	1.713	17	240	257

Table 5.2: Trip Rates and Vehicle – Additional 15,000 sqm Office Space

5.15 Table 5.2 demonstrates that, in comparison with the 45,000 square metres of B1(a)/B1(b) office space, previously assessed on the highway network as part of previous applications, the current proposals for 60,000 square metres of B1(a)/B1(b) office space would result in an additional 251 vehicle trips during the morning peak hour and 257 vehicle trips during the evening peak hour.

**Trip Distribution**

5.16 In order to determine the likely distribution of vehicle trips on the local road network, reference has been made to journey to work data from the 2011 Census for the Cherwell 015 output area in which the application site is located.

5.17 **Figure 5.3**, attached, details the expected distribution of vehicle trips on the local highway network and this is summarised below:

- ▶ A41 South 27%
- ▶ Vendee Drive 12%
- ▶ Kingsmere 3%
- ▶ A41 East 23%
- ▶ A41 North 35%

5.18 Vehicle trips associated with the development proposals, as set out in Table 5.1, have been assigned on the local road network based on the distribution set out at **Figure 5.3**. **Figures 5.4 and 5.5** show the expected distribution of vehicle trips during the weekday morning and evening peak hours, respectively.

**‘With Development’ Assessment**

5.19 As set out above, **Figures 5.1 and 5.2**, attached, present 2026 baseline traffic flows from the BTM for the weekday morning and evening peak hours, respectively.

5.20 Traffic flows associated with the development proposals, as shown on **Figures 5.4 and 5.5**, have been added to the baseline traffic flows in order to determine the 2026 traffic flows with the development proposals in place. **Figures 5.6 and 5.7**, attached, show the expected traffic flows on the local road network in 2026 with the development proposals in place.

**6.0 Effect of Development**

6.1 This section of the report considers the effect of the development on the highway network local to the site based on junction capacity modelling of the junctions agreed with Officers at OCC during pre-application scoping discussions.

6.2 As part of pre-application scoping discussions, Officers at OCC have requested that the following junctions be assessed as part of the Transport Assessment:

- ▶ Oxford Road (A41) / Lakeview Drive signalised junction;
- ▶ Oxford Road / A41 signalised roundabout;
- ▶ Oxford Road / Pingle Drive roundabout;
- ▶ Oxford Road / Middleton Stoney Road mini-roundabout;
- ▶ Oxford Road (A41) / Kingsmere signalised junction;
- ▶ A41 Oxford Road/ Vendee Drive; and
- ▶ A41/ A4421 Rodney House Roundabout.

6.3 As previously identified, highway improvement works are currently under construction at a number of the junctions listed above. In addition, further highway improvement works are consented at some junctions listed above in association with recently consented development proposals. The highway capacity assessment undertaken within this Transport Assessment considers the operation of the junctions with these improvements in place. Junction capacity modelling has been undertaken using the industry standard modelling package for each junction type i.e. ARCADY for conventional roundabouts and mini-roundabouts and LinSig for signal controlled junctions and signal controlled roundabouts.

**Oxford Road/ Middleton Stoney Road/ Kings End**

6.4 The mini-roundabout junction between Oxford Road, Middleton Stoney Road and Kings End has been modelled using ARCADY. It is noted that ARCADY is subject to limitations when assessing the operation of mini-roundabouts and can be unrepresentative of observed operation. To this extent it is considered more appropriate to assess the operation of the junction as a conventional roundabout within ARCADY.

6.5 Table 6.1 shows the operation of the junction in the 2026 baseline scenario based on the traffic flows provided by OCC from the BTM. Model output files are attached at **Appendix F**.

Approach	AM Peak		PM Peak	
	RFC	Queue (veh)	RFC	Queue (veh)
Middleton Stoney Road	0.729	3	0.801	4
Kings End	1.075	40	0.971	15
Oxford Road	0.528	1	0.808	4

Table 6.1: Oxford Road/ Middleton Stoney Road/ Kings End – 2026 Baseline Operation

6.6 The analysis shows that the junction is expected to operate slightly over theoretical capacity during the morning peak period in the baseline scenario with a maximum queue of 40 vehicles expected. During the evening peak period, the junction operates within capacity, with a maximum queue of 15 vehicles expected.



6.7 The analysis of the scenario with the development proposals in place identified that the development proposals would have an effect on the operation of the mini-roundabout junction between Oxford Road, Middleton Stoney Road and Kings End. As such, a highway improvement scheme has been designed to mitigate the effect of the development at this junction. The proposed highway improvement scheme is detailed at [Appendix G](#).

6.8 Table 6.2 shows the operation of the junction in the 2026 scenario with the proposed development and the proposed highway works in place. Model output files are attached at [Appendix F](#).

Approach	AM Peak		PM Peak	
	RFC	Queue (veh)	RFC	Queue (veh)
Middleton Stoney Road	0.825	5	0.845	5
Kings End	0.900	8	0.725	3
Oxford Road	0.535	1	0.881	7

Table 6.2: Oxford Road/ Middleton Stoney Road/ Kings End – 2026 With Development Operation

6.9 The result of the analysis demonstrate that the proposed highway works mitigate the effect of the development proposals and that the junction would operate within capacity during both the morning and evening peak periods. To this extent, the mitigation works provide a betterment to the operation of the junction, in comparison with the baseline operation of the junction.

#### A41 Highway Network

6.10 As part of the consented development proposals for Bicester Village Phase 4 and the constructed Tesco store, a package of highway works is under construction covering the following junctions:

- ▶ Oxford Road / Pingle Drive roundabout;
- ▶ A41 Oxford Road / Oxford Road signalised roundabout (Esso roundabout);
- ▶ A41 Oxford Road (A41) / Lakeview Drive signalised junction;
- ▶ A41 Oxford Road (A41) / Kingsmere signalised junction;

6.11 In addition, further highway improvements have been consented at the A41 Oxford Road junctions with Kingsmere and Lakeview Drive as part of the recently consented development proposals at Bicester Gateway Retail Park (Planning Ref: 16/02505/OUT).

6.12 The operation of the above junctions has been assessed using the industry standard package for signal controlled junctions, LinSig. In line with assessments undertaken from the consented Bicester Village Phase 4, Tesco and Bicester Gateway retail Park Schemes the four junctions have been modelled within a single LinSig model. LinSig model parameters have been based on the most recently approved LinSig model for the Bicester Gateway Retail Park development and, as such, include the consented highway works.

6.13 Table 6.3 provides a summary of the operation of the junctions in the 2026 baseline scenario based on the traffic flows provided by OCC from the BTM. Given the extent of model and the number of links, the below Table provides a summary of the operation of each junction and full link details for the A41/ Lakeview Drive junction. Full model output files are attached at [Appendix F](#).

Junction	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
Oxford Road/ Pingle Drive	44.7%	-	53.2%	-
Esso Roundabout	92.7%	-	99.0%	-
Oxford Road/ Kingsmere	69.3%	-	72.3%	-
Oxford Road/ Lakeview Drive	77.2%	-	86.5%	-
Oxford Road n/b (Ahead)	24.1%	1	44.4%	8
Oxford Road n/b (Ahead)	49.3%	4	48.5%	8
Oxford Road n/b (Ahead/ Right)	77.2%	29	62.1%	31
Oxford Road s/b (Ahead)	15.3%	1	26.3%	4
Oxford Road s/b (Ahead)	69.0%	18	74.6%	19
Oxford Road s/b (Left)	73.7%	16	81.4%	17
Lakeview Drive (Left/ Right)	38.2%	5	86.5%	16
Lakeview Drive (Right)	40.7%	2	46.3%	3
Overall PRC	-3.0%		-10.0%	

Table 6.3 – Oxford Road Corridor – 2026 Baseline Operation

6.14 The results of the analysis demonstrate that the junction is expected to operate within theoretical capacity although with negative Practical Reserve Capacity during both the morning and evening peak periods in the 2026 baseline scenario.

6.15 The analysis of the scenario with the development proposals in place identified that the development proposals would have an effect on the operation of the junction between the A41 Oxford Road and Lakeview Drive. As such, a highway improvement scheme has been designed to mitigate the effect of the development at this junction and is shown at [Appendix G](#).

6.16 Table 6.4 shows the operation of the junctions along the Oxford Road corridor in the 2026 scenario with the proposed development and the proposed highway works in place. Model output files are attached at [Appendix F](#).

Junction	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
Oxford Road/ Pingle Drive	52.4%	-	60.8%	-
Esso Roundabout	87.1%	-	91.7%	-
Oxford Road/ Kingsmere	75.1%	-	84.9%	-
Oxford Road/ Lakeview Drive	90.3%	-	90.7%	-
Oxford Road n/b (Ahead)	32.6%	3	76.3%	15
Oxford Road n/b (Ahead)	33.4%	5	76.9%	15
Oxford Road n/b (Ahead)	56.9%	11	77.2%	20
Oxford Road n/b (Right)	90.3%	16	46.4%	4
Oxford Road s/b (Left/ Ahead)	89.9%	26	85.4%	25
Oxford Road s/b (Ahead)	67.2%	18	73.6%	15
Oxford Road s/b (Ahead)	76.0%	9	72.5%	11
Lakeview Drive (Left/ Right)	44.3%	5	90.7%	29
Lakeview Drive (Right)	52.7%	3	84.6%	18
Overall PRC	-0.3%		-1.9%	

Table 6.4 – Oxford Road Corridor – 2026 With Development

6.17 The results of the analysis demonstrate that the junction is expected to operate within theoretical capacity, although with negative Practical Reserve Capacity, during both the morning and evening peak periods in the 2026 with the proposed development in place. To this extent, the analysis demonstrates that the proposed highways works mitigate the effect of the development proposals and provide a slight betterment to the operation of the junction between the A41 Oxford Road during both peak periods. As such, it is concluded that, subject to the mitigation works identified, the development would not have a material effect on the operation of this junction and no further assessment or mitigation is considered necessary.

**A41 / Bicester Park & Ride / Vendee Drive**

6.18 The conventional roundabout junction between the A41, Vendee Drive and Bicester Park and Ride has been assessed using the industry standard software package for roundabout junctions, ARCADY.

6.19 The consented development proposals at Bicester Gateway Business Park (Planning Ref: 16/O2586/OUT) include highway improvement works to the A41, Vendee Drive junction. The operation of the junction has been modelled inclusive of the consented junction improvements.

6.20 Table 6.5 below shows the operation of the junction in the 2026 baseline scenario based on the traffic flows provided by OCC from the BTM. Model output files are attached at **Appendix F**.

Approach	AM Peak		PM Peak	
	RFC	Queue (veh)	RFC	Queue (veh)
Vendee Drive	0.266	0	0.293	0
A41 (North)	0.739	3	0.844	5
Unnamed Road	0.175	0	0.416	1
A41 (South)	0.729	3	0.854	6
Bicester Park and Ride	0.026	0	0.212	0

Table 6.5 – A41/ Vendee Drive – 2026 Baseline Operation

6.21 The analysis demonstrates that the junction is expected to operate within theoretical capacity during both the morning and evening peak periods in the 2026 baseline scenario.

6.22 Table 6.6 below shows the operation of the junction in the 2026 with the proposed development in place. Model output files are attached at **Appendix F**.

Approach	AM Peak		PM Peak	
	RFC	Queue (veh)	RFC	Queue (veh)
Vendee Drive	0.421	1	0.307	0
A41 (North)	0.751	3	0.966	21
Unnamed Road	0.180	0	0.725	2
A41 (South)	0.801	4	0.892	8
Bicester Park and Ride	0.034	0	0.337	1

Table 6.5 – A41/ Vendee Drive – 2026 With Development Operation

6.23 The analysis demonstrates that the junction is expected to operate within theoretical capacity during both the morning and evening peak periods in 2026 with the proposed development in place.

6.24 It is acknowledged that, based on the scenario assessed, the additional traffic associated with the development would result in an increase in queuing on some arms of the junctions. However, as previously highlighted the analysis is based a future year assessment, 9 years in advance of the submission of the planning application submission and this is considered a robust assessment of the operation of the highway network. On the basis that the junction is shown to operate within theoretical capacity under this robust assessment, no mitigation or further assessment is considered necessary.

**A41/ A4421 – Rodney House Roundabout**

6.25 The Rodney House roundabout is currently a conventional roundabout. As part of consented development proposals at Graven Hill, highway improvement works are proposed at the Rodney House roundabout which include the signalisation of the junction. Officers at OCC have provided Motion with plans of the consented highway works at the junction.

6.26 Capacity modelling for the Rodney House roundabout has therefore been undertaken using the industry standard package for signal controlled roundabouts, LinSig. Junction geometries and parameters have been based on the consented highways works drawing provided by OCC.

6.27 Table 6.7 below shows the operation of the junctions in the 2026 baseline scenario based on the traffic flows provided by OCC from the BTM. Model output files are attached at **Appendix F**.

Approach	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
A41 (Left/ Ahead)	70.9%	7	82.2%	10
A41 (Ahead)	6.4%	1	22.2%	2
Graven Hill Road (Left)	67.3%	5	70.9%	4
Graven Hill Road (Ahead)	36.2%	2	41.8%	2
A41 (Left/ Ahead)	54.4%	5	63.6%	7
A41 (Ahead)	47.5%	6	52.3%	7
B4100 (Left/ Ahead)	38.9%	2	44.0%	3
B4100 (Ahead)	42.3%	2	59.9%	4
A4421 (Left/ Ahead)	59.5%	5	61.1%	5
A4421 (Ahead)	42.8%	4	50.7%	4
Overall PRC	+26.9%		+7.5%	

Table 6.7: Rodney House Roundabout – 2026 Baseline Operation

6.28 The results of the analysis demonstrate that the junction is expected to operate within capacity during both the morning and evening peak periods in the 2026 baseline scenario.

6.29 Table 6.8 below shows the operation of the junction in the 2026 with the proposed development in place. Model output files are attached at **Appendix F**.

Approach	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
A41 (Left/ Ahead)	79.3%	9	82.9%	10
A41 (Ahead)	8.7%	1	22.2%	2
Graven Hill Road (Left)	67.1%	5	70.9%	4
Graven Hill Road (Ahead)	38.2%	3	42.2%	2
A41 (Left/ Ahead)	56.3%	6	70.1%	8
A41 (Ahead)	46.8%	6	60.1%	8
B4100 (Left/ Ahead)	38.9%	2	44.0%	3
B4100 (Ahead)	56.1%	3	60.7%	4
A4421 (Left/ Ahead)	57.8%	5	62.8%	5
A4421 (Ahead)	51.4%	4	58.2%	4
Overall PRC	+12.9%		+7.5%	

Table 6.8: Rodney House Roundabout – 2026 Baseline with Development Operation

- 6.30 The results of the analysis demonstrate that the junction is expected to operate within capacity during both the morning and evening peak periods in the 2026 with the proposed development in place. On that basis, it is evident that the proposed development would not have a material effect on the operation of this junction and no further assessment or mitigation measures is considered necessary.

#### Summary

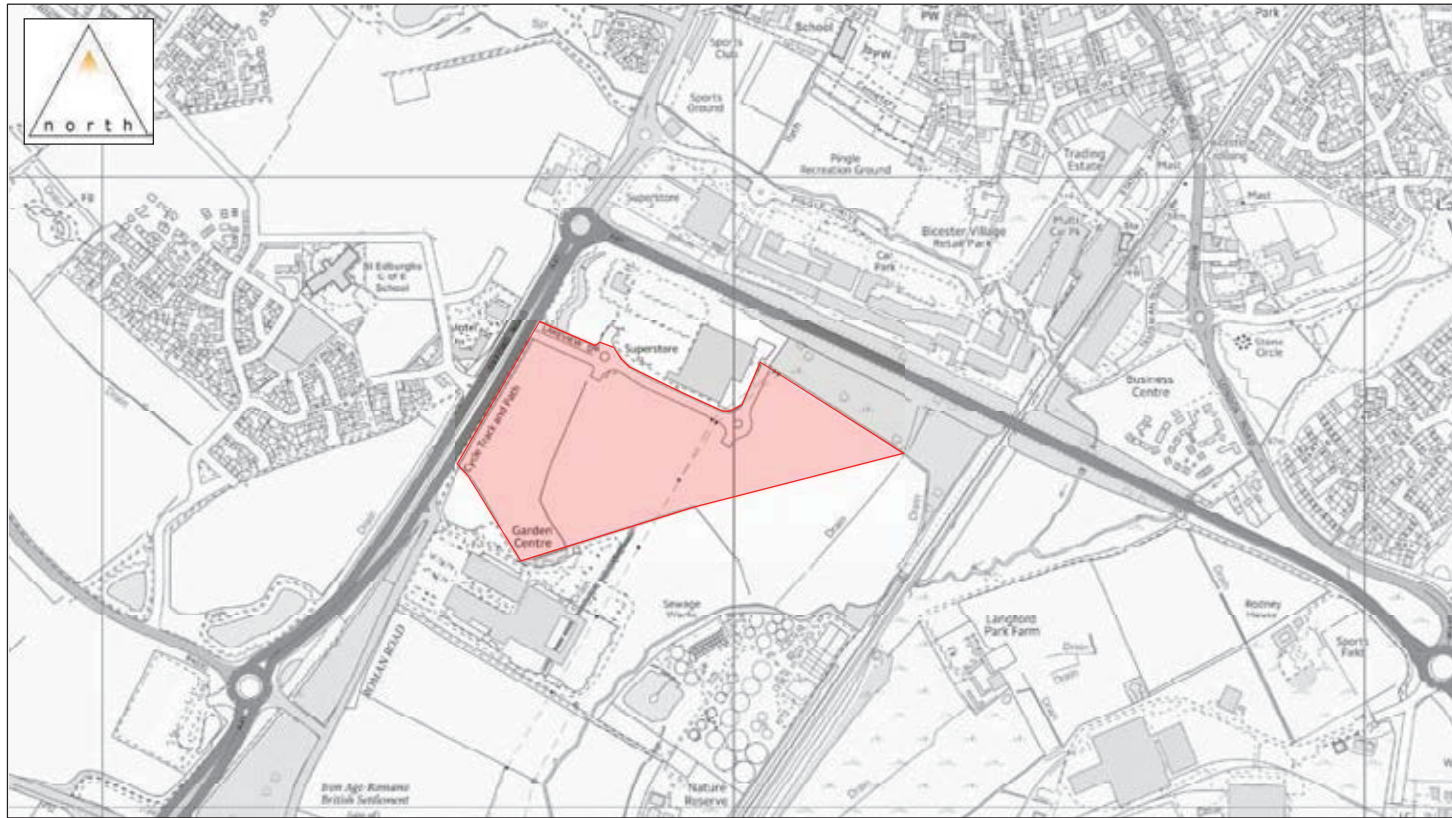
- 6.31 The effect of the development proposals on the local highway network has been assessed at the following junctions, as agreed with OCC:
- ▶ A41 Oxford Road / Lakeview Drive signalised junction;
  - ▶ Oxford Road / A41 signalised roundabout;
  - ▶ Oxford Road / Pingle Drive roundabout;
  - ▶ Oxford Road / Middleton Stoney Road mini-roundabout;
  - ▶ A41 Oxford Road / Kingsmere signalised junction;
  - ▶ A41 Oxford Road/ Vendee Drive; and
  - ▶ A41/ A4421 Rodney House Roundabout.
- 6.32 The results of detailed junction capacity analysis demonstrate that, subject to the highway mitigation works identified at the junctions between A41 Oxford Road/ Lakeview Drive and at the junction between Oxford Road and Middleton Stoney Road, the development proposals would not result in a material effect in the operation of the highway network local to the site.
- 6.33 As such it concluded that the proposed highway works, as shown in drawings presented at **Appendix G**, are sufficient to mitigate the effect of the development on the local highway network. To this extent no further assessment, mitigation measures or Section 106 obligation towards further transport schemes, such as the South-Eastern Perimeter Rad (SEPR), are considered necessary or justified in planning terms.
- 6.34 The highway mitigation works presented at **Appendix G**, are to mitigate for the effect of traffic associated with the full development proposals of 60,000 square metres (GEA) of B1(a)/B1(b) office space. It is evident that a proportion of the full development proposals could come forward without significant effect on the highway network and in advance of the delivery of the proposed highway works. To this extent a threshold analysis will be undertaken separately to establish the level of B1(a)/B1(b) office space that can come forward in advance of the delivery of the highway mitigation works and without material effect on the highway network.

## 7.0 Summary and Conclusions

- 7.1 Motion has been appointed by Scenic Land Developments Ltd to prepare this Transport Assessment in relation to development proposals on land to the east of the A41 Oxford Road, Bicester within the administrative boundary of Cherwell District Council (CDC).
- 7.2 The site is currently undeveloped and is bound by the A41 Oxford Road to the west and Lakeview Drive to the north whilst Wyevale Garden Centre is located to the immediate south. The Bicester – Oxford railway line operates to the east and is separated from the site by undeveloped land.
- 7.3 Outline planning permission was granted in 2010 for the construction of a 60,000-square metre office park comprising 53,000 square metres of B1(a)/B1(b) office space and a 7,000-square metre C1 hotel, served by circa 1,837 car parking spaces (Planning Ref: 07/01106/OUT).
- 7.4 Detailed planning consent was subsequently granted in November 2013 for the construction of a Tesco food store of 8,135 square metres and petrol filling station on part of the consented office park site (Planning Ref: 12/01193/F). That planning application was supported by a Transport Assessment which considered the effect of the development proposals on the highway network local to the site. The Tesco store has since been constructed and opened in April 2016.
- 7.5 The S106 Deed of Variation in relation to the consented Tesco store and office park allows for the construction of up to 45,000 square metres of the B1(a)/B1(b) office space being delivered on the remainder of the site, as part of the previous outline planning consent for an office park.
- 7.6 The current planning application seeks outline planning consent, with all matters reserved except access, for the development of up to 60,000 square metres (GEA) of B1(a)/B1(b) office space. Vehicle access to the site would be via the two existing roundabout junctions on Lakeview Drive.
- 7.7 The current development proposals would supersede and replace the previous outline consent for an office park on the site. In comparison with the previous outline planning consent for an office park on the site, the current site area excludes the portion of the site, north of Lakeview Drive, which has since been developed for a Tesco store. However, the site area now includes a parcel of land along the frontage of the A41 Oxford Road, south of Lakeview Drive, which was previously not within the applicant's ownership and was not part of the previous outline planning consent for an office park.
- 7.8 This Transport Assessment has been prepared in accordance with national and local guidance and has considered the highways and transport matters associated with the current development proposals and, in particular, the effect of the development proposals on the highway network local to the site.
- 7.9 This Transport Assessment has demonstrated that:
- ▶ The application site is accessible by foot, cycle and by public transport;
  - ▶ The application is allocated under Bicester Policy 4 of the Cherwell Local Plan for development of a high-quality office park;
  - ▶ Outline planning permission was previously granted in 2010 for the construction of a 60,000-square metre office park comprising 53,000 square metres of B1(a)/B1(b) office space and a 7,000-square metre C1 hotel, served by circa 1,837 car parking spaces (Planning Ref: 07/01106/OUT).
  - ▶ The development proposals would be accessed from Lakeview Drive via two existing roundabout junctions;
  - ▶ Car parking and cycle parking will be provided in accordance with local parking standards;
  - ▶ The effect of the development proposals on the local highway network has been assessed based on parameters agreed with OCC.
  - ▶ Highway mitigation works have been identified at the junction between the A41 Oxford Road/ Lakeview drive and at the junction between Oxford Road/ Middleton Stoney Road.

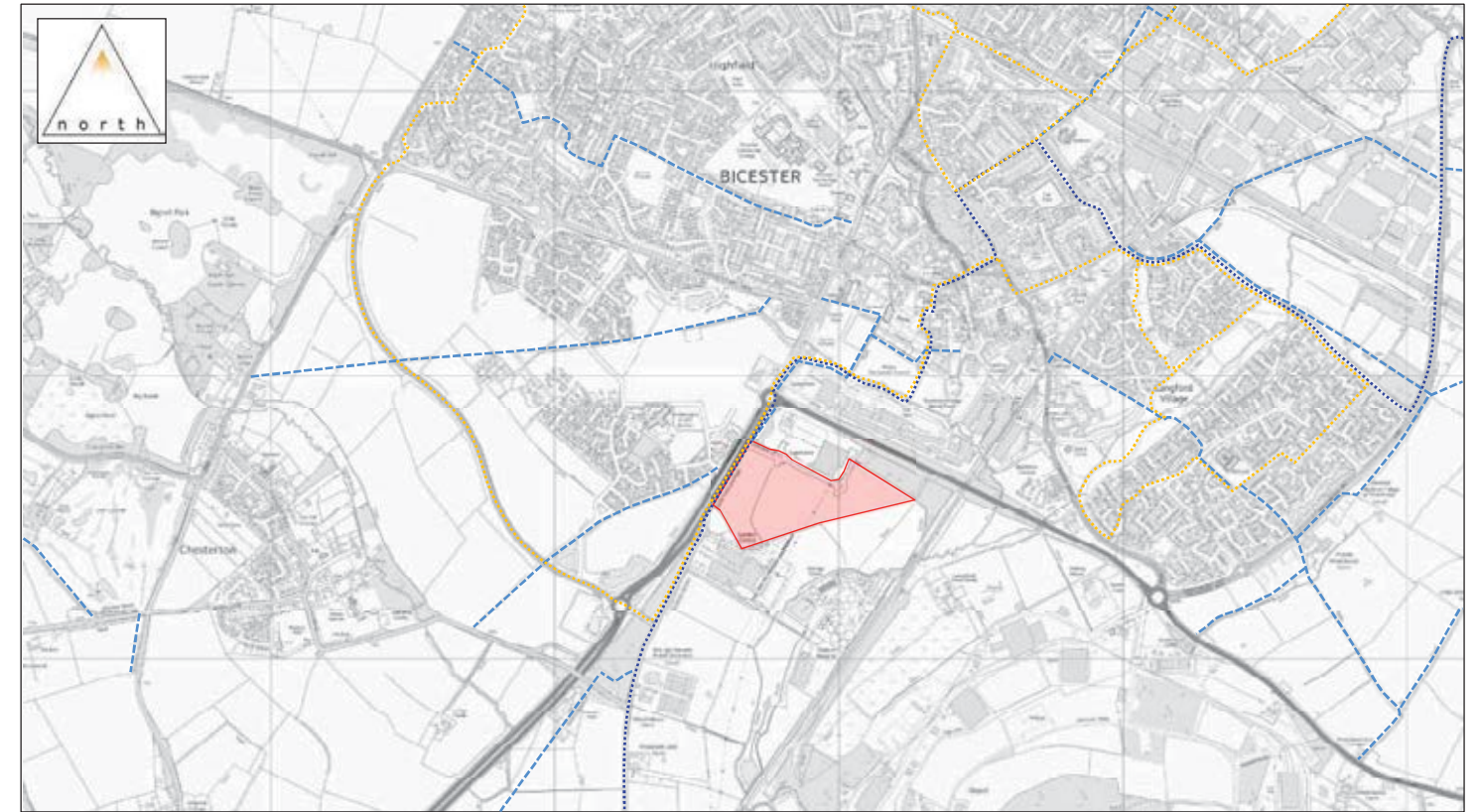
- ▶ The results of detailed junction capacity analysis demonstrate that, subject to highway mitigation works identified, the development proposals would not result in a material effect in the operation of the highway network local to the site; and
  - ▶ A Framework Workplace Travel Plan has been developed in order to promote sustainable travel choices amongst staff and visitors to the proposed development and is submitted under separate cover.
- 7.10 It is concluded that the proposed highway works, as presented within this Transport Assessment, are sufficient to mitigate the effect of the development on the local highway network. To this extent no further assessment, mitigation measures or Section 106 obligation towards further transport schemes, such as the South Eastern Perimeter Rad (SEPR), are considered necessary or justified in planning terms.
- 7.11 On that basis, it is concluded that the development proposals would not result in a material effect on the operation of the highway network local to the site. The development proposals are in accordance with national and local transport related planning policy and, as such, should not be resisted on highways or transportation grounds.

## Figures



Legend:  
 Site Location

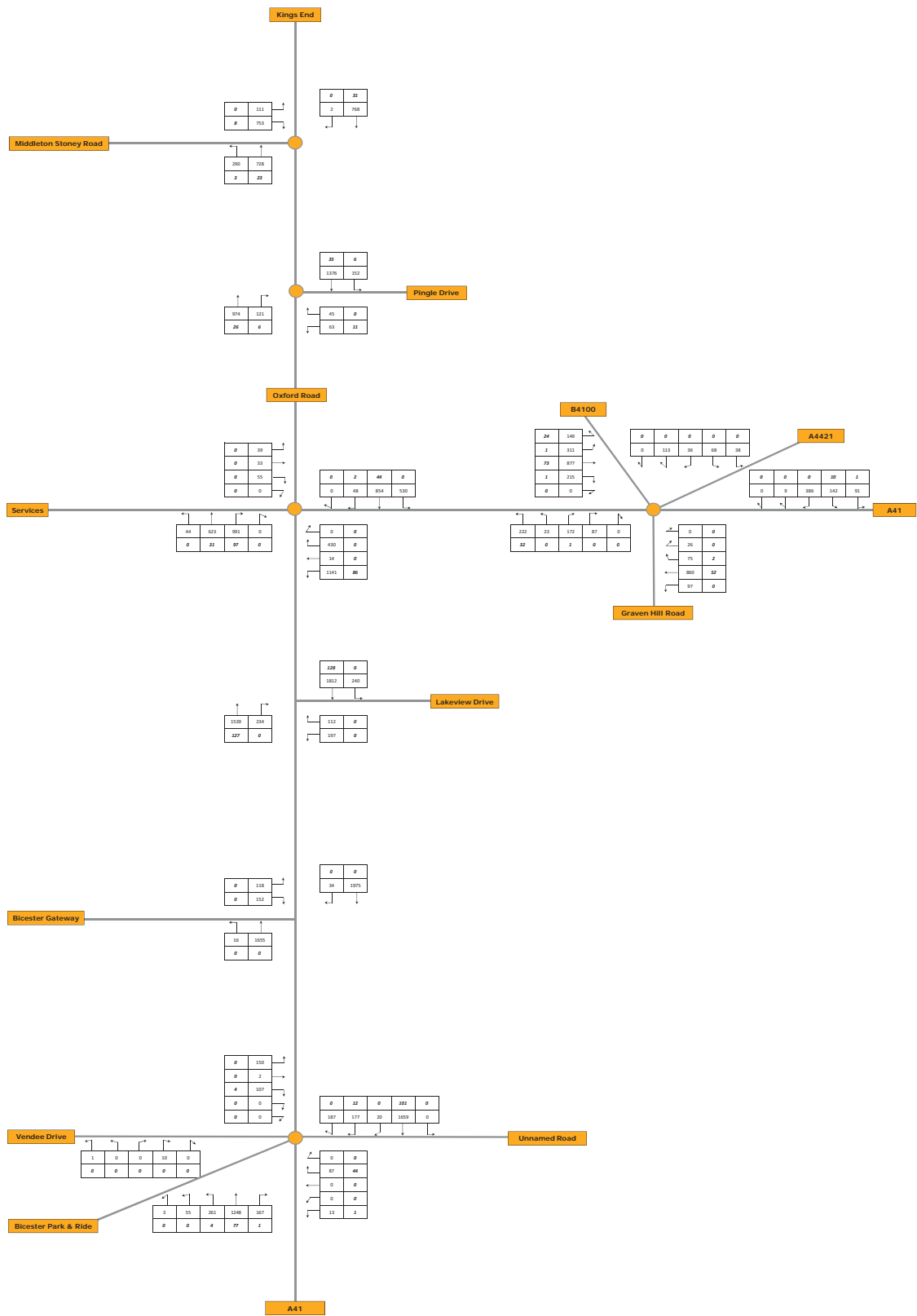
Bicester Office Park,  
 Bicester  
**Figure 3.1 Site Location Plan**  
 Not to Scale

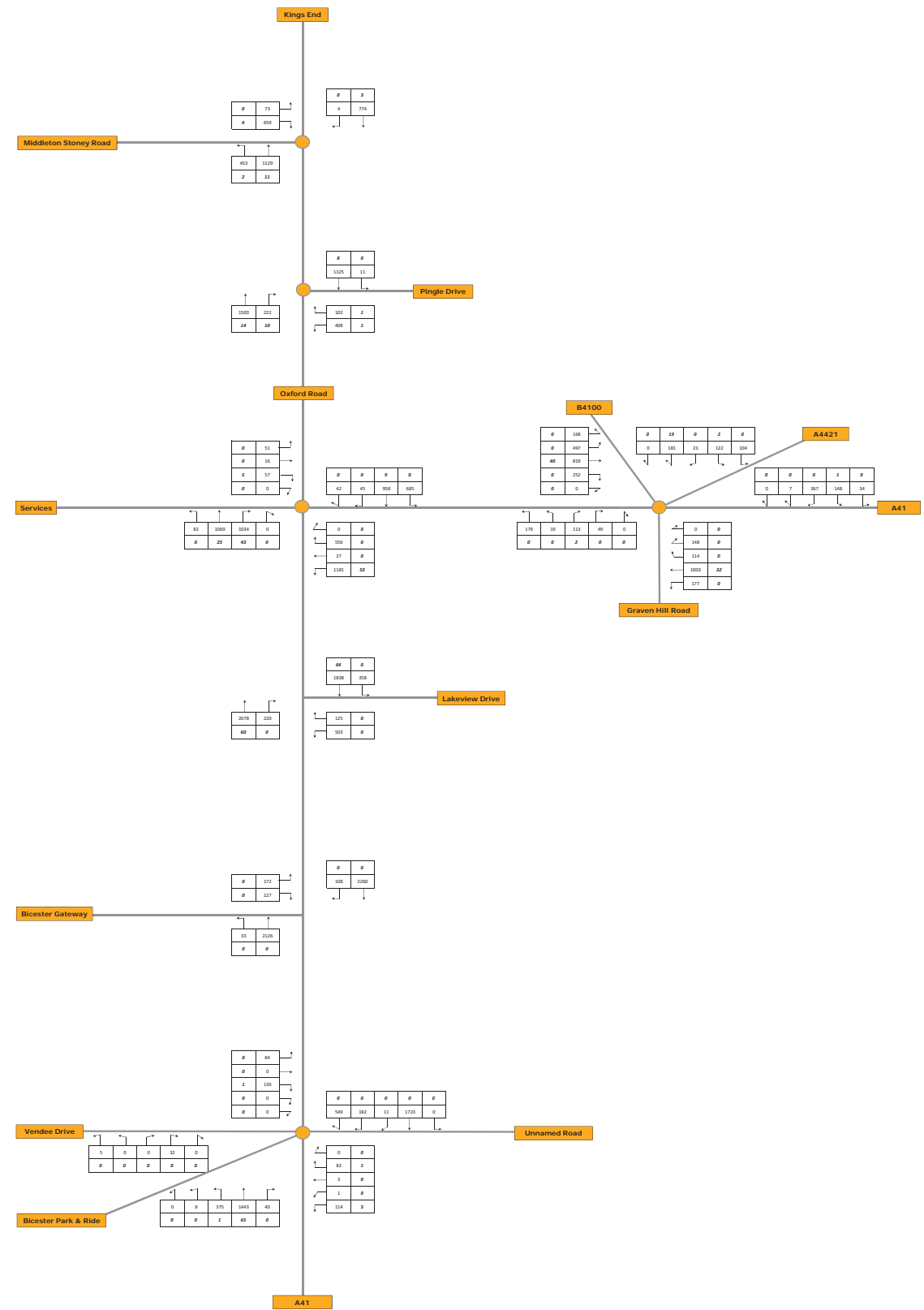
Legend:  
 Local Footpath  
 Local Signed Cycle Route  
 National Cycle Network Route 51  
 Site Location

Bicester Office Park,  
 Bicester  
**Figure 3.2 Local Footpaths and Cycle Routes**  
 Not to Scale

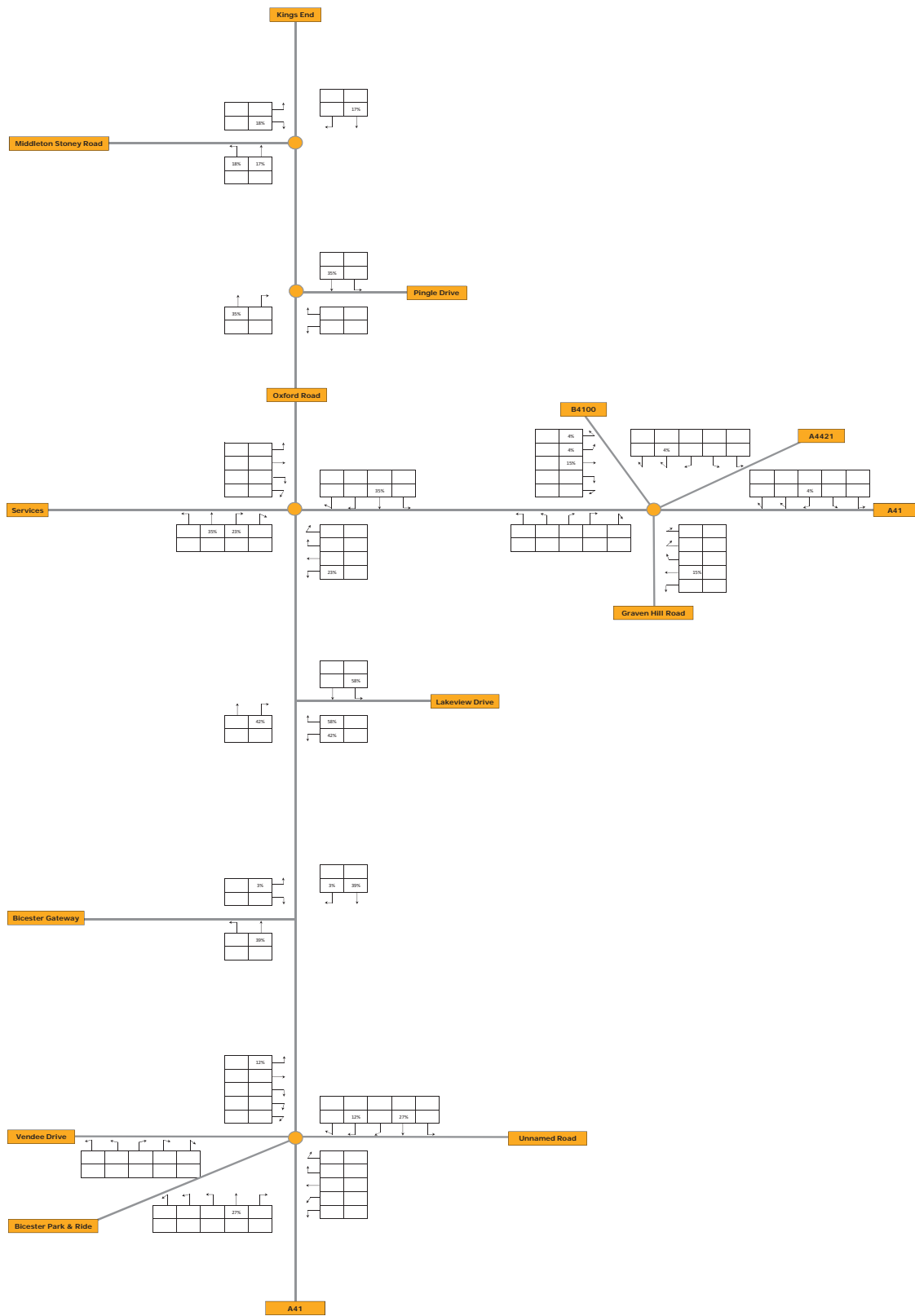




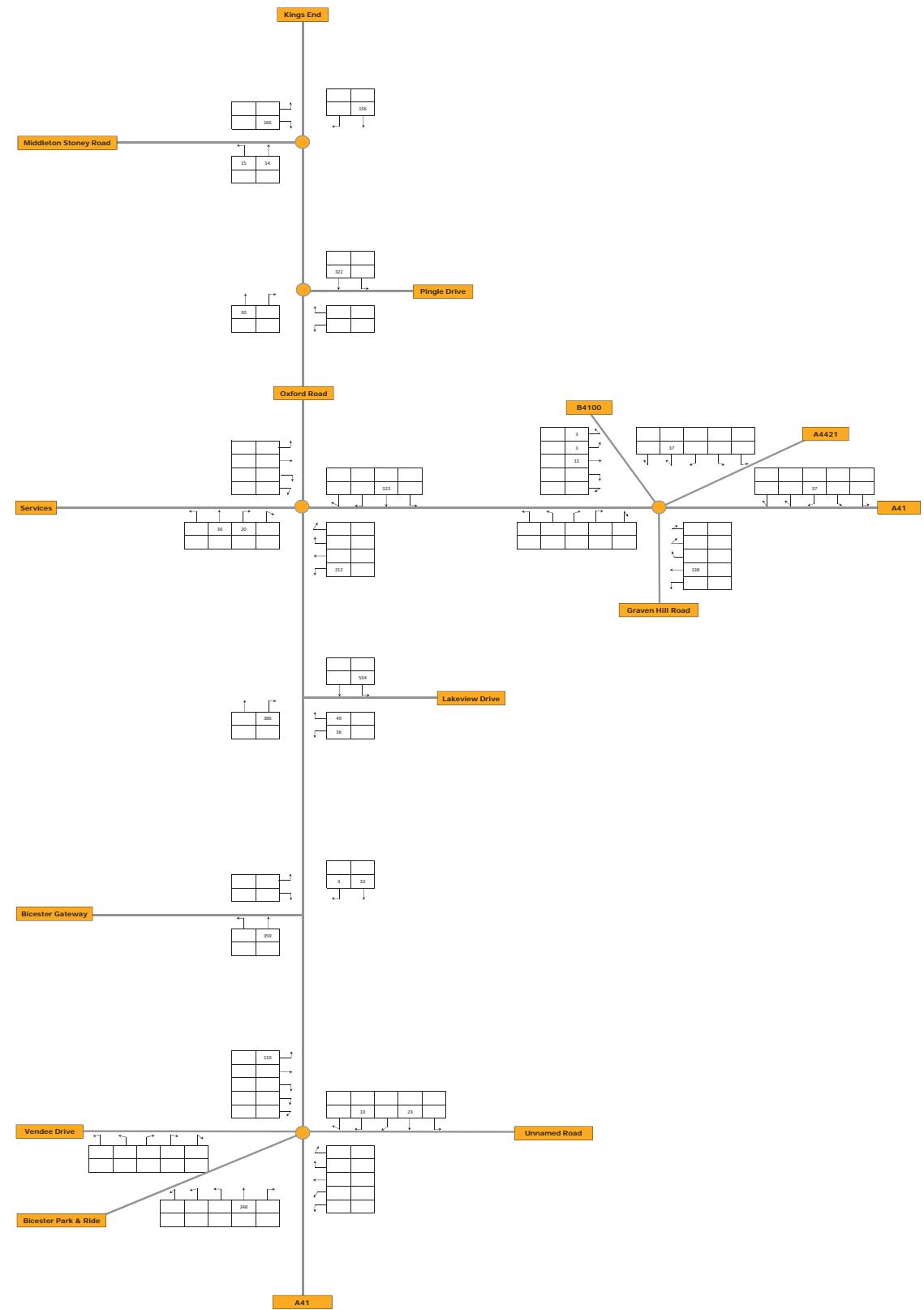
  
 Bicester Office Park  
 2026 Bicester Traffic Model Baseline Flows - AM Peak  
 Figure 5.1



  
 Bicester Office Park  
 2026 Bicester Traffic Model Baseline Flows - PM Peak  
 Figure 5.2

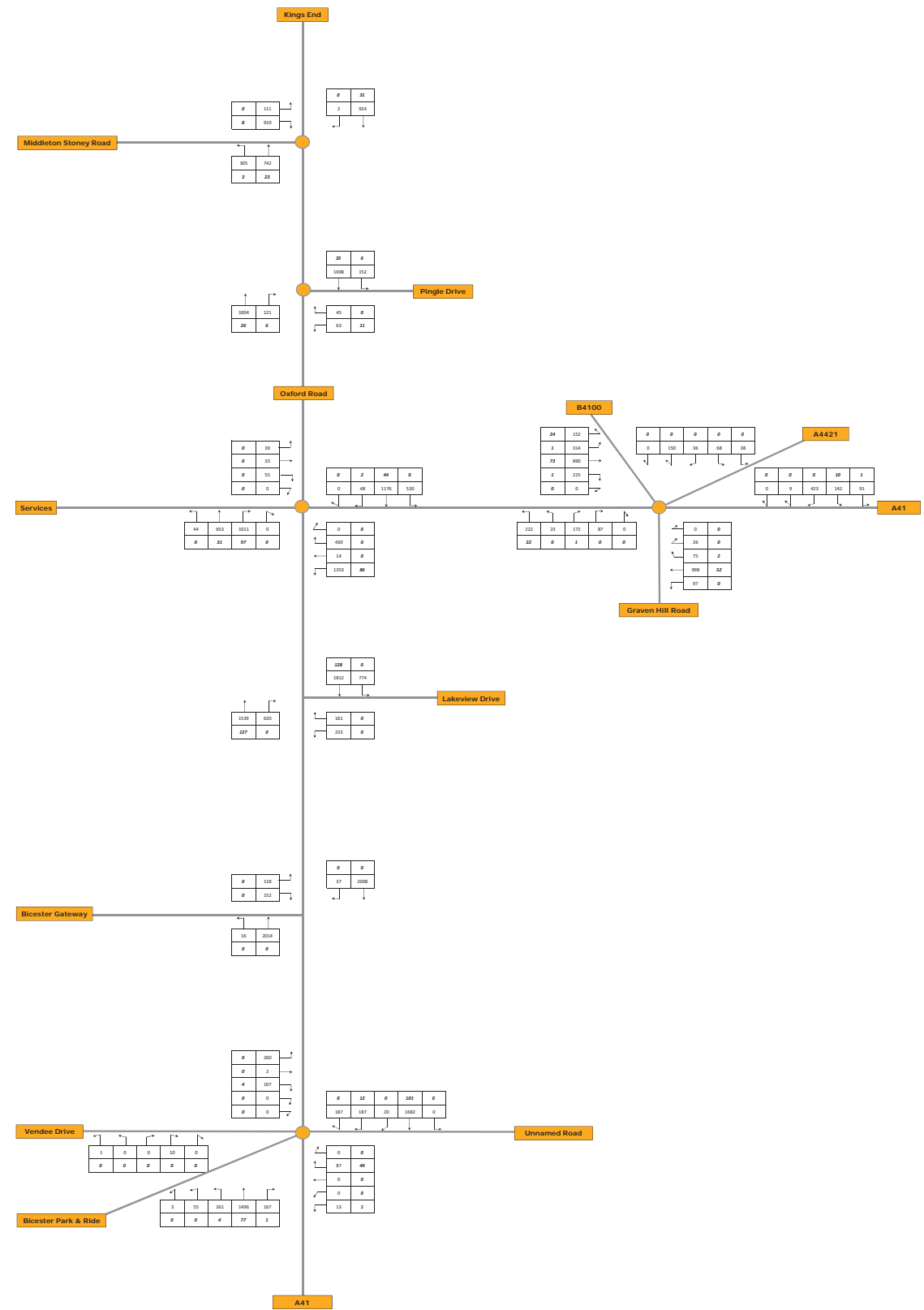
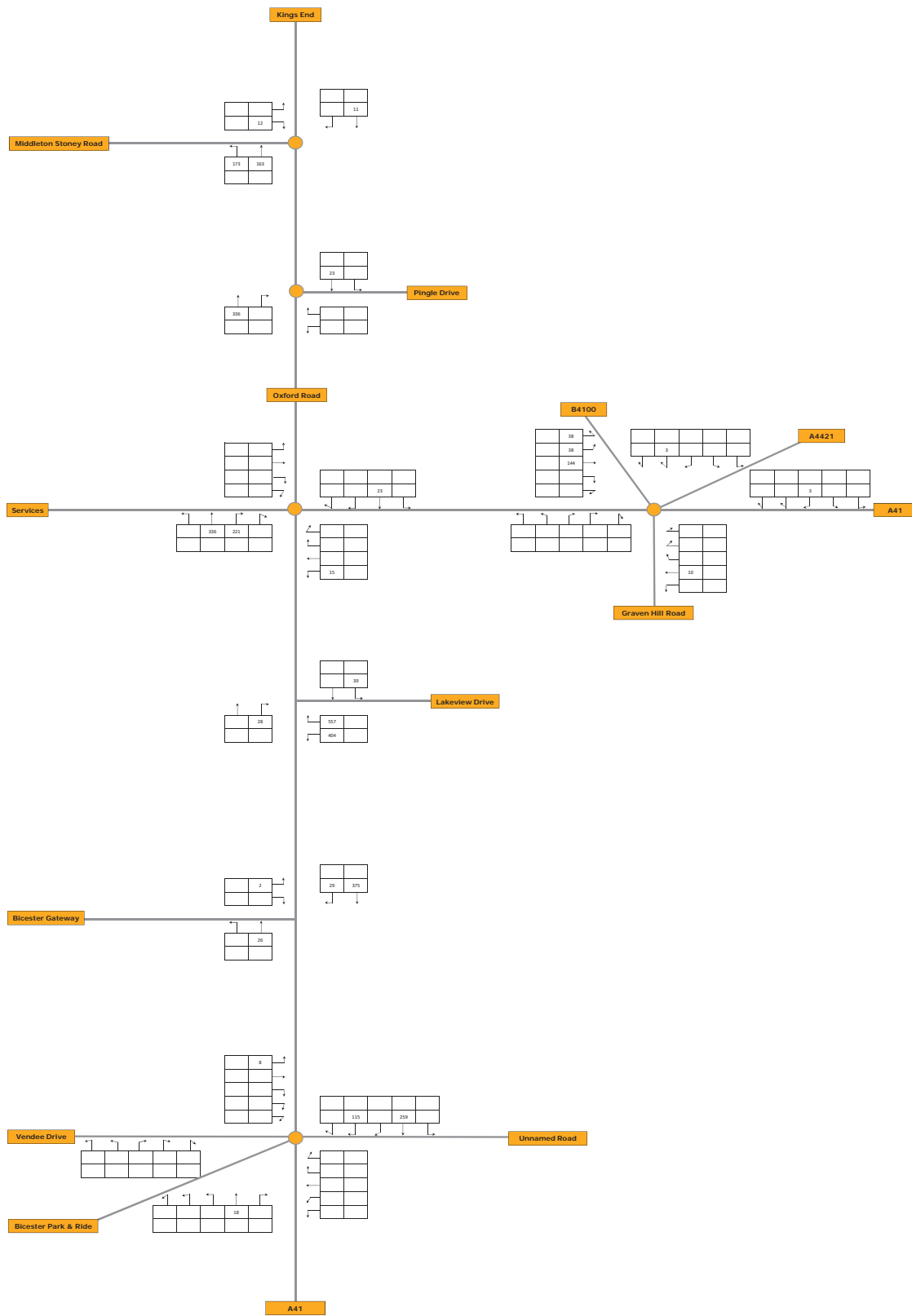


**motion**  
 Bicester Office Park  
 Vehicle Trip Distribution  
 Figure 5.3

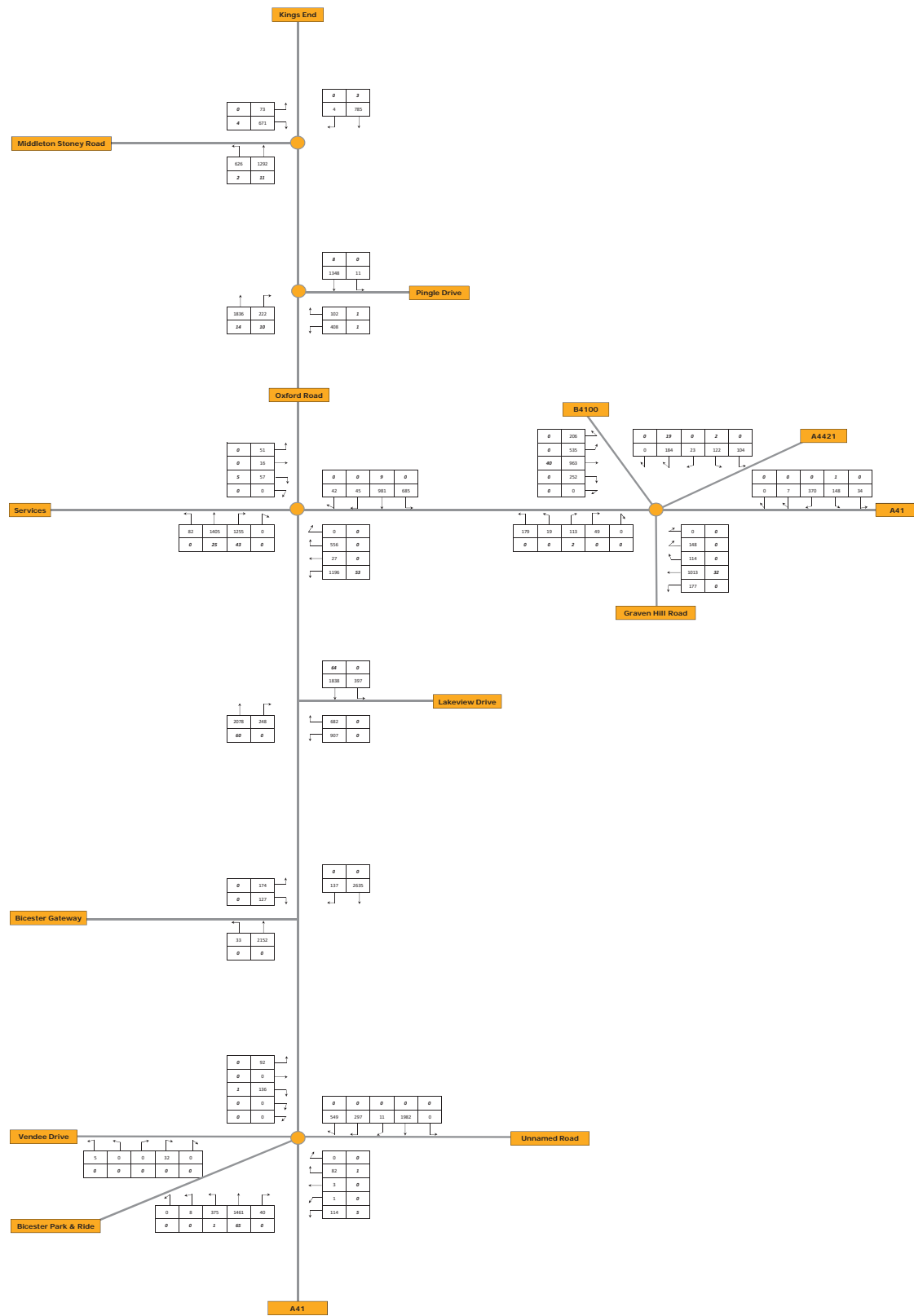


**motion**  
 Bicester Office Park  
 Development Vehicle Trips - AM Peak Period  
 Figure 5.4

in 100  
 out 25







**Appendix A**

Oxfordshire County Council Pre-Application Response

**District:** Cherwell

**Application No:** 17/CH0005/PREAPP

**Proposal:** The construction of an office park providing up to 57,000 square metres of B1 office space.

**Location:** Bicester Office Park. Land To South And East Of The A41 Oxford Road, Bicester, Oxfordshire

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## Transport

Oxfordshire County Council is a consultee of the local planning authority and provides advice on the likely transport and highways impact of development where necessary.

It should be noted that the advice below represents the informal opinion of an officer of the council only, which is given entirely without prejudice to the formal consideration of any planning application, which may be submitted. Nevertheless the comments are given in good faith and fairly reflect an opinion at the time of drafting given the information submitted.

### Key issues:

- Strategic contribution towards the South Eastern Perimeter Road

### Legal agreement required to secure:

If a planning application were to be submitted and approved a S278 would be required to deliver any highway improvements that it was decided would be needed to make the development acceptable e.g. new site access junction, footway improvements.

A new S106 agreement would be needed to secure the S278 works and also a financial contribution towards

- Public transport improvements and
- Strategic contribution towards the delivery of the South East Link Road- required to mitigate the development's impact on the A41 junctions

Travel Plan monitoring fees shall be required

### Informatives:

Please note the Advance Payments Code (APC), Sections 219 -225 of the Highways Act, is in force in the county to ensure financial security from the developer to off-set the frontage owners' liability for private street works, typically in the form of a cash deposit or bond. Should a developer wish for a street or estate to remain private then to secure exemption from the APC procedure a 'Private Road Agreement' must be

entered into with the County Council to protect the interests of prospective frontage owners. For guidance and information on road adoptions etc. please email the County's Road Agreements Team at [roadagreements@oxfordshire.gov.uk](mailto:roadagreements@oxfordshire.gov.uk)

### Detailed comments:

The A41 from which the site is accessed is heavily trafficked and will be put under further pressure from Cherwell Local Plan growth allocations, including the allocation on this site (Bicester 4).

This was recognised by Bicester Village in their application for Phase 4 of their development, where they are now delivering major highway improvements at and between the Esso roundabout and Pingle Drive junctions, having also provided a Bicester Park and Ride facility.

The highway works which are currently underway on the A41 (and related to the expansion of Bicester Village) will deliver a new bus layby on the northbound side of the A41. The highway works which are related to the construction and use of the permitted Bicester Business Park would, once they are triggered (i.e. once construction begins), also provide a northbound and southbound bus layby. Clearly as the Bicester Village works are already underway, once construction of any permission granted for the business park begins, its corresponding remaining liability would be to provide the southbound layby (as the northbound will have by then been delivered).

### Scoping Note

Having had a chance to look at the Scoping Note dated 19<sup>th</sup> April 2017 for a Transport Assessment, I wish to make the following comments.

### Policy Consideration

Various Policies that should be considered relevant to this development are:

#### National Policies

- National Planning Policy Framework (NPPF)
- National Planning Practice Guidance (NPPG)

#### Local Policy Context include

- Connecting Oxfordshire 2015-2031 (LTP4)
- The Cherwell Local Plan (Adopted July 2015) from which the Policy Bicester 4 requires;
  - Layout that enables a high degree of integration and connectivity between new and existing development particularly the mixed use urban extension at South West Bicester to the west, the garden centre to the south, and, to the north, Bicester town centre and Bicester Village retail outlet.
  - Provision for safe pedestrian access from the A41 including facilitating the crossing of the A41 to the north and west, and the provision and upgrading of footpaths and cycleways that link to existing networks to improve connectivity generally and to develop

links between this site, nearby development sites and the town centre.

- Good accessibility to public transport services should be provided for, including the accommodation of new bus stops to link the development to the wider town.
- A Transport Assessment and Travel Plan to accompany development proposals.

#### Area of Impact and Junction Modelling

The scoping note accompanying this pre-application enquiry proposes to consider the following junctions for assessment

- Oxford Road / Pingle Drive Roundabout
- Oxford Road / A41 signalised roundabout
- Site Access (Oxford Road / A41 Lakeview Drive signalised junction)
- Oxford Road (A41) / Kingsmere signalised junction.

As previously mentioned in our telephone conversation on 26<sup>th</sup> April, in addition to the above junctions, the Transport Assessment will need to look at a wider study area to include;

- A41 / Vendee Drive / Oxford Road (A41) roundabout and
- Oxford Road / Middleton Stoney Road / Kings End roundabout
- Rodney House roundabout junction.

These junctions further afield are critical, likely to be impacted by the whole of Bicester 10 when it comes forward and Bicester 4 and the TA shall be expected to carry out capacity tests demonstrating the effect of the development on the highway network.

The scoping note under section 4.4 mentions that traffic surveys shall be undertaken during a weekday morning and evening peak period. The weekend peaks on the A41 approaching Bicester are very high. Owing to the adjacent land use particularly Bicester Village and Tesco superstore, in terms of the effect of the proposal on traffic at the Saturday and Sunday peak times, it would add to the already high volume of retail development traffic in the area. I would like to see further justification of not including a weekend assessment.

#### Future Years

Paragraph 4.5 of the Scoping Note sets a future year assessment to the fifth year after submission of the Transport Assessment – which puts it down to 2022. In my view, I feel this period should be extended to cover 2026 in line with the Bicester Transport Model which includes 2024 interim year and also includes the committed development expected to come forward at that time. We would like this to be the forecast year rather than 2022.

Committed development – Use of the Bicester Transport Model 2026 would include all development expected to come forward by that time. Consideration also needs to be given to two pending planning applications close by to the site, which are both proposing highway mitigation works along the A41. These are;

- 16-02505-OUT – Bicester Gateway (Kingsmere Retail)

- 16-02586-OUT – Bicester Gateway (Bicester 10)

The model includes significant committed developments expected to come forward and including the growth trips. Should the model be used, TEMPRO shall not be required in this case.

We shall however like to see the network tested using the flows from the model.

#### Trip Generation

The scoping note accompanying this pre-application enquiry proposes to use TRICS database to establish an estimate of the number of vehicles that the proposed development might generate when it is fully occupied.

I appreciate that the scoping note submitted attempts to estimate the likely number of trips generated that shall be generated by the development. However, the trip rates used appear rather low especially in the PM peak. I would further appreciate that a trip rates commensurate to the developments close by to be considered, such as ones used in planning ref: 16-02586-OUT.

Characteristics of business parks are likely to have very high levels of car use and very peaky demand for travel. The Oxford Business Park (Garsington Road) certainly displays these characteristics, which results in very long queues and delays when employees decide to leave at the same time (at 1705, for example). Arguably, similar characteristics could be expected on this site, especially when combined with the late Friday afternoon flow from the Tesco store. Will these characteristics be reflected in a TA – what mitigation can be provided – to spread the peak for example.

#### Other scoping matters

Public Transport - The applicant will need to robustly assess public transport accessibility between the development site and the wider network. The original application included a requirement to provide a pair of bus stops on the A41 and an agreement to provide some S106 funding to provide a bus service into the site.

The bus stops have not been fully delivered, with a new bus stop having recently been installed on the western side of the A41, to the north of the Premier Inn hotel. I guess the bus stop on the eastern side of the A41 is tied up with the Bicester Business Park Legal Agreement. In any event, it is absolutely essential that this is provided.

That being said, the walking distance to these bus stops along the A41 from some of these workplace units could be around 750 metres. I would like to see how the applicant addresses the distance in the TA.

#### **South Eastern Perimeter Road (SEPR)**

The Local Transport Plan 4 Bicester Area Strategy proposes a South East Perimeter Road in Bicester, which will ease congestion on the A41 and also mitigate the development's impact on the A41 junctions. It is partly funded, but currently requires contributions to fund the western section proposed, so contributions towards this are likely to be a consideration in terms of mitigating the Bicester Business Park

proposals. Other future developments in the area would also be expected to contribute.

The cumulative impact of development in Bicester will be severe if appropriate contributions are not secured from all development sites towards the strategic transport infrastructure required to mitigate the increased transport movements.

Strategic transport modelling demonstrates the benefits that the SEPR will bring to the A41 (Oxford Road):

- The A41 Oxford Road is a key corridor in Bicester where junctions along its length are impacted significantly as a result of the growth of Bicester, including Bicester 10. The Application Site is estimated to increase the proportion of peak hour traffic at the A41/ Vendee Drive junction by between 7% and 8% in 2024.
- The SEPR has been identified as a key piece of strategic infrastructure that will bring direct relief to the A41 corridor, thereby facilitating improved operation of junctions directly impacted by Bicester 10.
- Modelling has demonstrated the benefits that the SEPR would bring to the A41. In the AM peak:
  - Over 1000 vehicles (pcu's) that would otherwise use the A41 Oxford Rd northbound through Vendee Dve would route via SEPR (eastbound)
  - Around 930 vehicles (pcu's) that would otherwise use A41 Boundary Way and turn left on A41 Oxford Rd southbound past Bic 10, would route via SEPR (westbound)
  - Therefore, over 1930 vehicles (pcu's) would use the SEPR that would otherwise route along A41 past the Bicester 10 site.

It is acknowledged however, that the capacity released on the A41 by the SEPR will itself encourage some traffic that might otherwise choose NOT to use the A41, to divert along the corridor. When taking diverted traffic into account, the net reduction in traffic on the A41 in the vicinity of the Bicester 10 site would be around 1130 pcu's.

### **Car parking**

Sufficient car parking will need to be provided to ensure that there is no overspill onto surrounding roads or inappropriate use of the Park and Ride site. Designs and provision should take into account areas within the development that may be subject to inappropriate parking such as on green verge areas or turning heads. OCC requires 2.4m x 4.8m parking bays and 6m width of manoeuvrable space between parking rows. OCC parking standards for B1 Office developments also require 1 parking space per 30sqm GFA, to include about 6% of DDA per development unit.

Consideration of the interaction of car parking with other sites in the area e.g. acting as an overspill car parking area for Bicester Village (rather than Bicester Village visitors using the P&R) must also be made. A robust car parking management plan should be included in the Travel Plan.

### **Cycle parking**

The county's cycle parking standards sets out how developers should provide sufficient secure and covered cycle parking for staff and visitors. Cycle parking should be easy to locate and as close to the buildings as possible, not only to make it as attractive to potential users as possible but also to allow natural surveillance from the building itself.

### **Drainage**

A surface water drainage scheme for the site will need to be submitted with a planning application. This will be based on sustainable drainage principles and an assessment of the hydrological and hydro-geological context of the development, The scheme will need to include:

- Discharge Rates
- Discharge Volumes
- Maintenance and management of SUDS features (including details of who will be responsible maintaining the SUDS & landowner details)
- Sizing of features – attenuation volume
- Infiltration tests to be undertaken in accordance with BRE365
- Detailed drainage layout with pipe numbers (to include direction of flow)
- SUDS (list the suds features mentioned within the FRA to ensure they are carried forward into the detailed drainage strategy)
- Network drainage calculations (to prove that the proposals will work)
- Phasing plans
- Flood Risk Assessment

### **Travel Plan**

A Travel Plan Statement meeting the requirements set out in the Oxfordshire County Council guidance document, Transport for New Developments; Transport Assessments and Travel Plans will be required for this application. It would need to be produced and agreed prior to first occupation.

Additionally, a Travel Information Pack would need to be submitted to and approved by the Local Planning Authority prior to first occupation. The first occupants of each development unit shall be provided with a copy of the approved Travel Information Pack.

**Officer's Name:** Rashid Bbosa

**Officer's Title:** Transport Engineer

**Date:** 09 May 2017

---



**Thames Valley Police**  
Chief Constable Francis Habgood QPM

Headquarters  
Oxford Road  
Kidlington  
Oxfordshire  
OX5 2NX

Ms K Lewis  
motion  
8 Duncannon Street,  
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WC2N 4JF

Telephone: 101  
Direct dial: 01865 542051  
Email: [publicaccess@thamesvalley.pnn.police.uk](mailto:publicaccess@thamesvalley.pnn.police.uk)

**Our ref:** HQ/PA/001870/17  
**Your ref:**

7 July 2017

**Appendix B**  
Traffic Accident Data

Dear Ms Lewis

I write in response to the above-referenced Freedom of Information Act (FOIA) request submitted on 5 July 2017. Thames Valley Police has now considered this request, which for clarity, has been repeated below:

<b><u>Request</u></b>	<b><u>Response</u></b>
<p>I am after the total number of slight, serious and fatal accidents over the most recent five year period to include causation factors. The area I require this for is as follows:</p> <p>Oxford Road between the Park &amp; Ride/Vendee Drive roundabout and the Kings End/Middleton Stoney roundabout; A41 between the Esso Roundabout and Rodney House Roundabout; and, Lakeview Drive.</p>	<p>Slight – 40 Serious – 5 Fatal – 2</p> <p>Please see the attached data sheet for causation factors. The causation factors listed are the initial opinion of attending officers. These may be disproven in following investigations.</p>

**Complaint Rights**

If you are dissatisfied with the handling procedures or the decision made by Thames Valley Police, you can lodge a complaint with the force to have the decision reviewed within two months of the date of this response. Complaints should be made in writing to the FOI inbox; [publicaccess@thamesvalley.pnn.police.uk](mailto:publicaccess@thamesvalley.pnn.police.uk).

If, after lodging a complaint with Thames Valley Police, you are still unhappy with the outcome, you may make application to the Information Commissioner at the Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF.

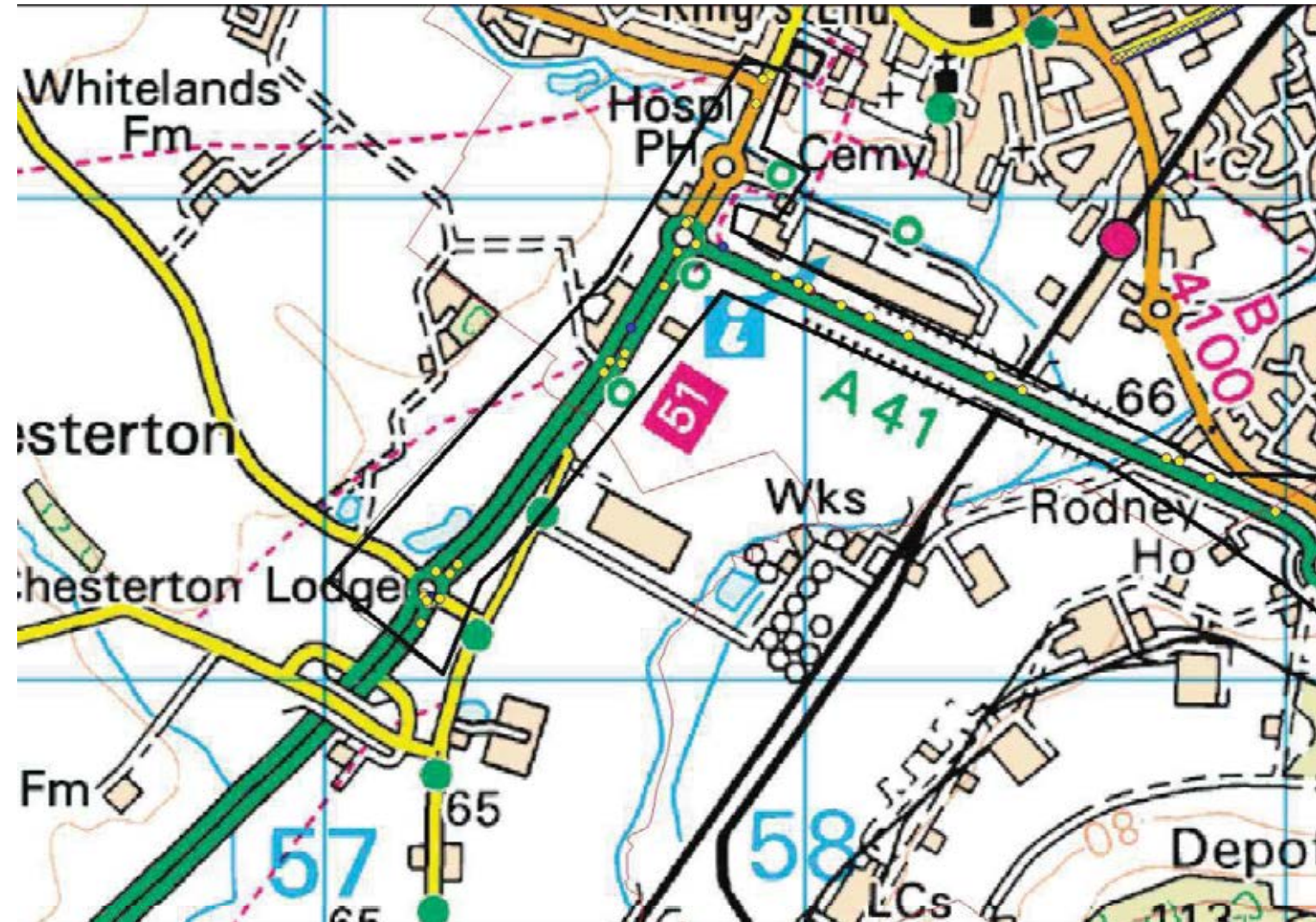


**Thames Valley Police**  
Chief Constable Francis Habgood QPM

If you require any further assistance, please do not hesitate to contact this office.

Yours sincerely

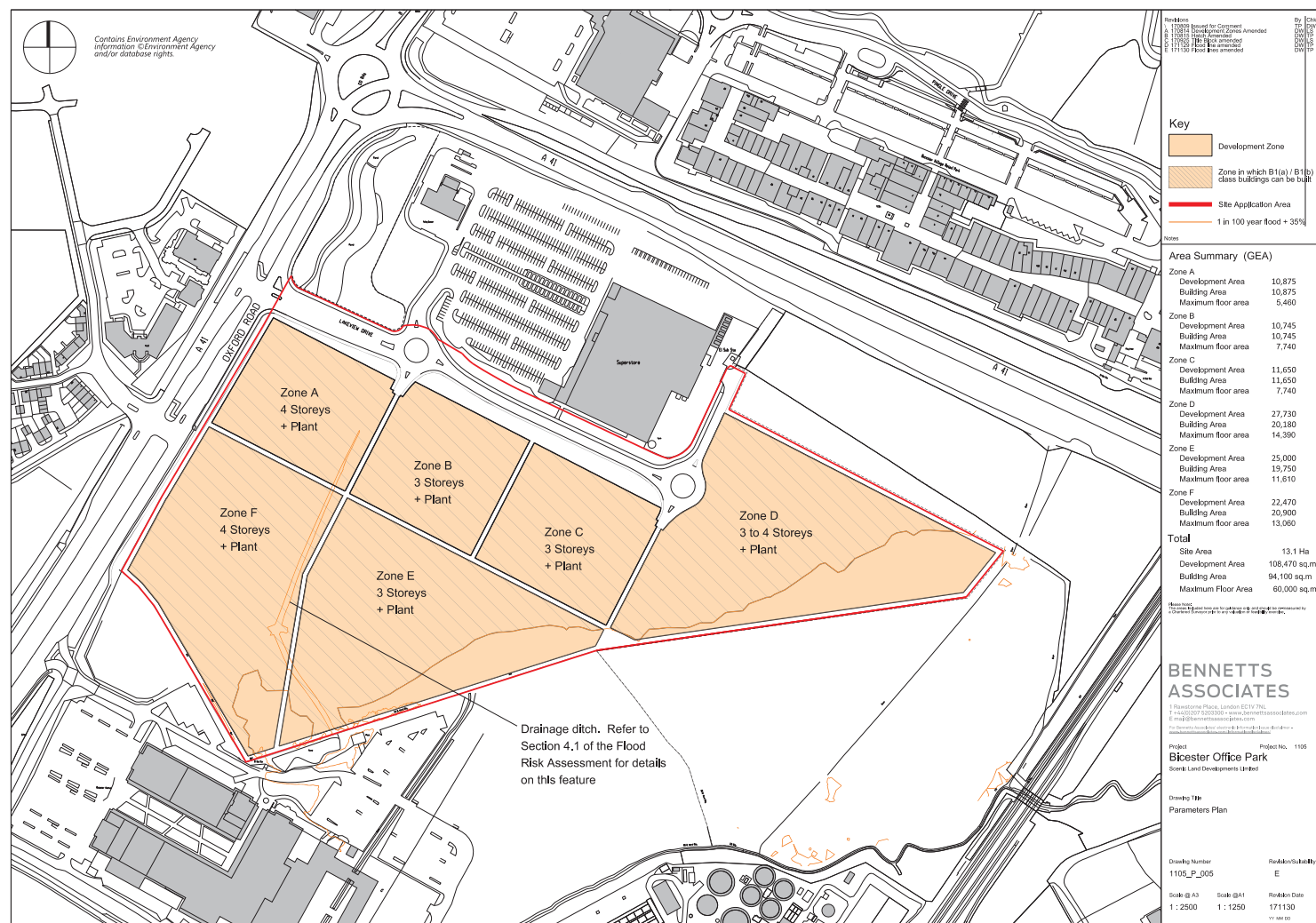
Darren Humphries  
Public Access  
Joint Information Management Unit



CF1	CF2	CF3	CF4	CF5	CF6
405. Failed to look properly	509. Distraction in vehicle	. Not coded	. Not coded	. Not coded	. Not coded
501. Impaired by alcohol	. Not coded	. Not coded	. Not coded	. Not coded	. Not coded
406. Failed to judge other persons path or speed	310. Cyclist entering road from pavement	. Not coded	. Not coded	. Not coded	. Not coded
410. Loss of control	103. Slippery road (due to weather)	503. Fatigue	. Not coded	. Not coded	. Not coded
405. Failed to look properly	406. Failed to judge other persons path or speed	. Not coded	. Not coded	. Not coded	. Not coded
602. Careless/Reckless/In a hurry	707. Rain, sleet, snow, or fog	509. Distraction in vehicle	306. Exceeding speed limit	. Not coded	. Not coded
405. Failed to look properly	509. Distraction in vehicle	602. Careless/Reckless/In a hurry	306. Exceeding speed limit	. Not coded	. Not coded
406. Failed to judge other persons path or speed	602. Careless/Reckless/In a hurry	405. Failed to look properly	308. Following too close	. Not coded	. Not coded
307. Travelling too fast for conditions	406. Failed to judge other persons path or speed	. Not coded	. Not coded	. Not coded	. Not coded
306. Exceeding speed limit	408. Sudden braking	401. Junction overshoot	. Not coded	. Not coded	. Not coded
505. Illness or disability, mental or physical	. Not coded	. Not coded	. Not coded	. Not coded	. Not coded
405. Failed to look properly	308. Following too close	. Not coded	. Not coded	. Not coded	. Not coded
405. Failed to look properly	406. Failed to judge other persons path or speed	308. Following too close	. Not coded	. Not coded	. Not coded
406. Failed to judge other persons path or speed	. Not coded	. Not coded	. Not coded	. Not coded	. Not coded
103. Slippery road (due to weather)	405. Failed to look properly	406. Failed to judge other persons path or spei	308. Following too close	. Not coded	. Not coded
405. Failed to look properly	406. Failed to judge other persons path or speed	402. Junction restart	509. Distraction in vehicle	. Not coded	. Not coded
308. Following too close	308. Following too close	406. Failed to judge other persons path or spei	406. Failed to judge other persons pat .	. Not coded	. Not coded
999. Other	. Not coded	. Not coded	. Not coded	. Not coded	. Not coded
308. Following too close	406. Failed to judge other persons path or speed	707. Rain, sleet, snow, or fog	103. Slippery road (due to weather)	607. Inexperience with type of vehicle	408. Sudden braking
308. Following too close	408. Sudden braking	602. Careless/Reckless/In a hurry	406. Failed to judge other persons pat .	. Not coded	. Not coded
902. Vehicle in course of crime	. Not coded	. Not coded	. Not coded	. Not coded	. Not coded
407. Too close to cyclist, horse or pedestrian	. Not coded	. Not coded	. Not coded	. Not coded	. Not coded
501. Impaired by alcohol	410. Loss of control	408. Sudden braking	. Not coded	. Not coded	. Not coded
408. Sudden braking	406. Failed to judge other persons path or speed	405. Failed to look properly	. Not coded	. Not coded	. Not coded
405. Failed to look properly	. Not coded	. Not coded	. Not coded	. Not coded	. Not coded
405. Failed to look properly	406. Failed to judge other persons path or speed	308. Following too close	. Not coded	. Not coded	. Not coded
606. Inexperience of driving on the left	403. Poor turn or manoeuvre	. Not coded	. Not coded	. Not coded	. Not coded
109. Animal or object in carriageway	306. Exceeding speed limit	409. Swerved	503. Fatigue	. Not coded	. Not coded
405. Failed to look properly	406. Failed to judge other persons path or speed	308. Following too close	. Not coded	. Not coded	. Not coded
407. Too close to cyclist, horse or pedestrian	602. Careless/Reckless/In a hurry	. Not coded	. Not coded	. Not coded	. Not coded
405. Failed to look properly	. Not coded	. Not coded	. Not coded	. Not coded	. Not coded
501. Impaired by alcohol	. Not coded	. Not coded	. Not coded	. Not coded	. Not coded
405. Failed to look properly	406. Failed to judge other persons path or speed	308. Following too close	602. Careless/Reckless/In a hurry	509. Distraction in vehicle	306. Exceeding speed limit
505. Illness or disability, mental or physical	410. Loss of control	. Not coded	. Not coded	. Not coded	. Not coded
203. Defective brakes	202. Defective lights or indicators	405. Failed to look properly	406. Failed to judge other persons pat	506. Not displaying lights at night or i	310. Cyclist entering road from pavement
508. Driver using mobile phone	. Not coded	. Not coded	. Not coded	. Not coded	. Not coded
602. Careless/Reckless/In a hurry	503. Fatigue	. Not coded	. Not coded	. Not coded	. Not coded
503. Fatigue	509. Distraction in vehicle	405. Failed to look properly	. Not coded	. Not coded	. Not coded
405. Failed to look properly	406. Failed to judge other persons path or speed	509. Distraction in vehicle	. Not coded	. Not coded	. Not coded
405. Failed to look properly	403. Poor turn or manoeuvre	710. Vehicle blind spot	. Not coded	. Not coded	. Not coded
403. Poor turn or manoeuvre	410. Loss of control	. Not coded	. Not coded	. Not coded	. Not coded
302. Disobeyed Give Way or Stop sign or markings	601. Aggressive driving	602. Careless/Reckless/In a hurry	. Not coded	. Not coded	. Not coded
301. Disobeyed automatic traffic signal	406. Failed to judge other persons path or speed	403. Poor turn or manoeuvre	. Not coded	. Not coded	. Not coded
405. Failed to look properly	403. Poor turn or manoeuvre	. Not coded	. Not coded	. Not coded	. Not coded
302. Disobeyed Give Way or Stop sign or markings	405. Failed to look properly	406. Failed to judge other persons path or spei	408. Sudden braking	602. Careless/Reckless/In a hurry	. Not coded
405. Failed to look properly	403. Poor turn or manoeuvre	603. Nervous/Uncertain/Panic	308. Following too close	. Not coded	. Not coded
502. Impaired by drugs (illicit or medicinal)	602. Careless/Reckless/In a hurry	. Not coded	. Not coded	. Not coded	. Not coded

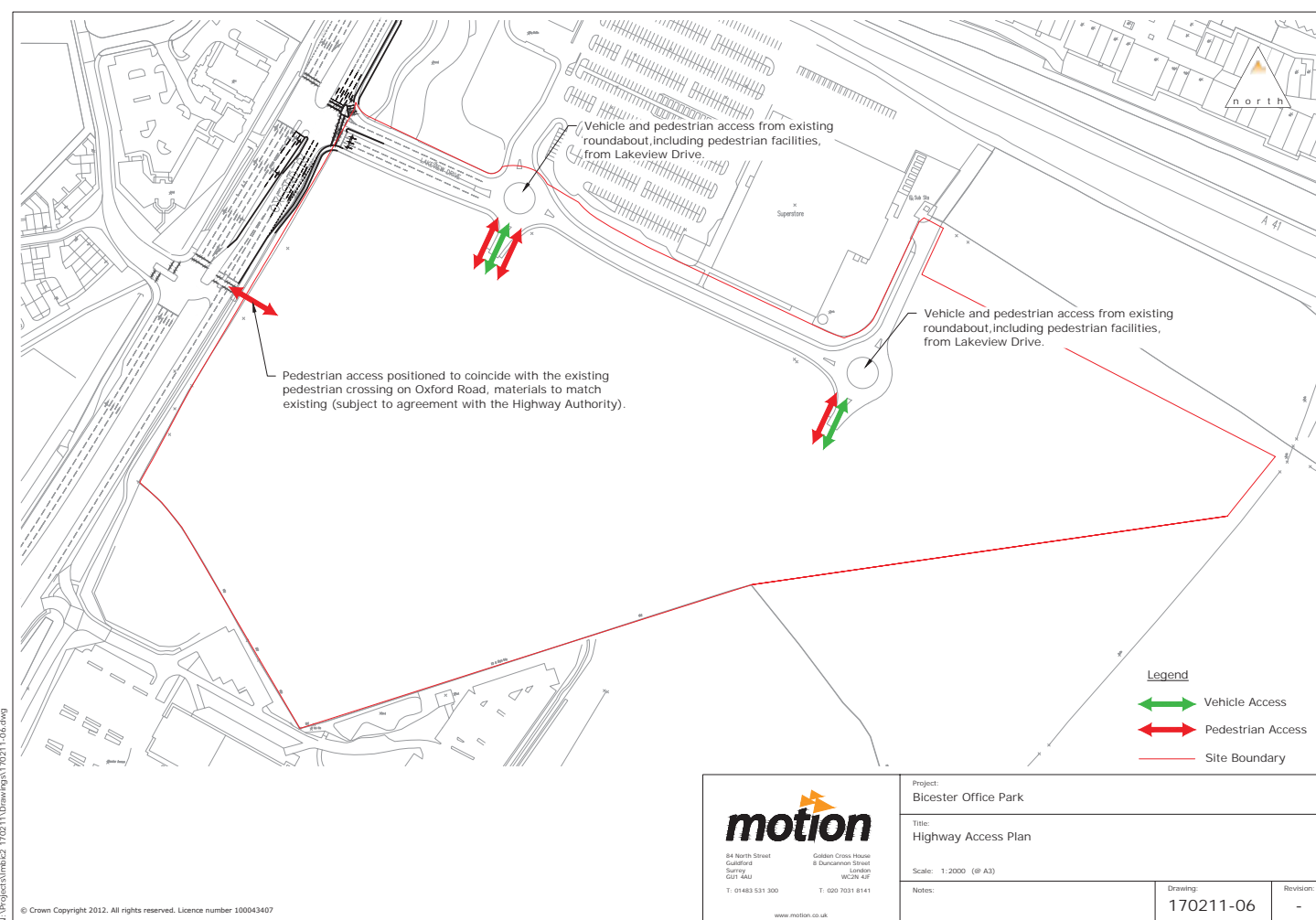
## Appendix C

### Parameters Plan



**Appendix D**  
Highways Access Plan

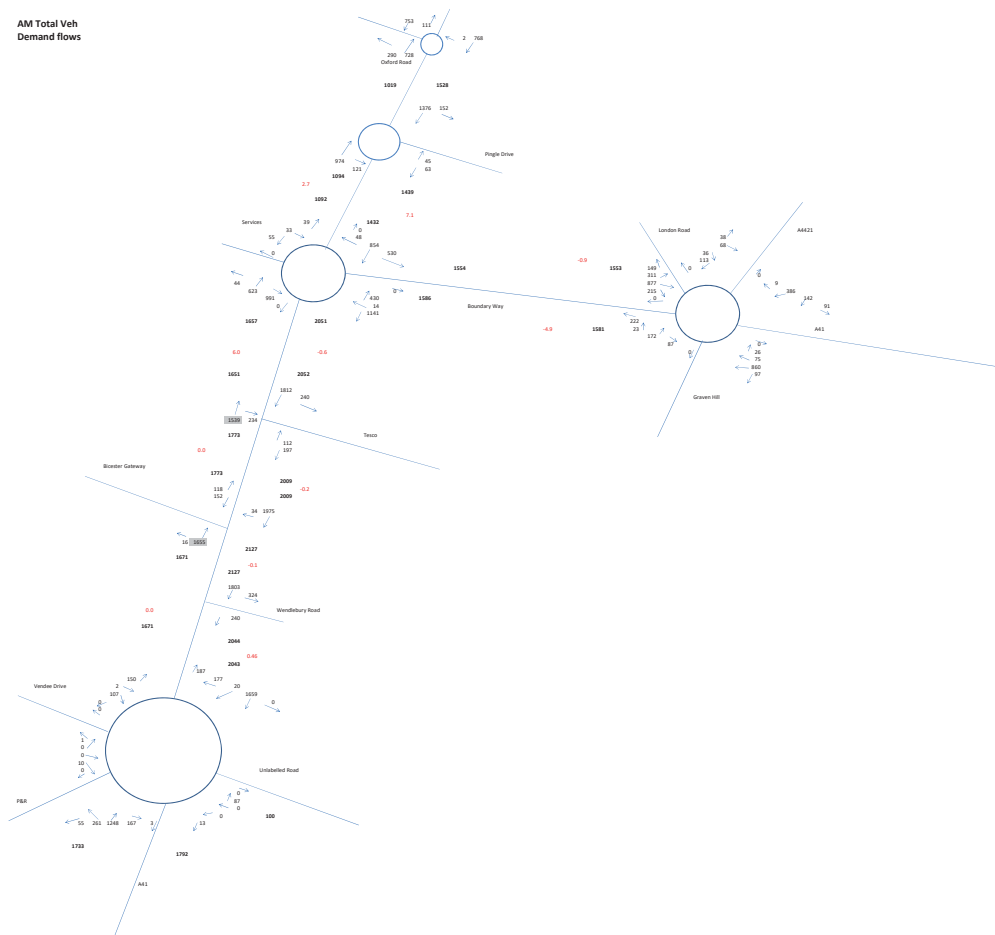




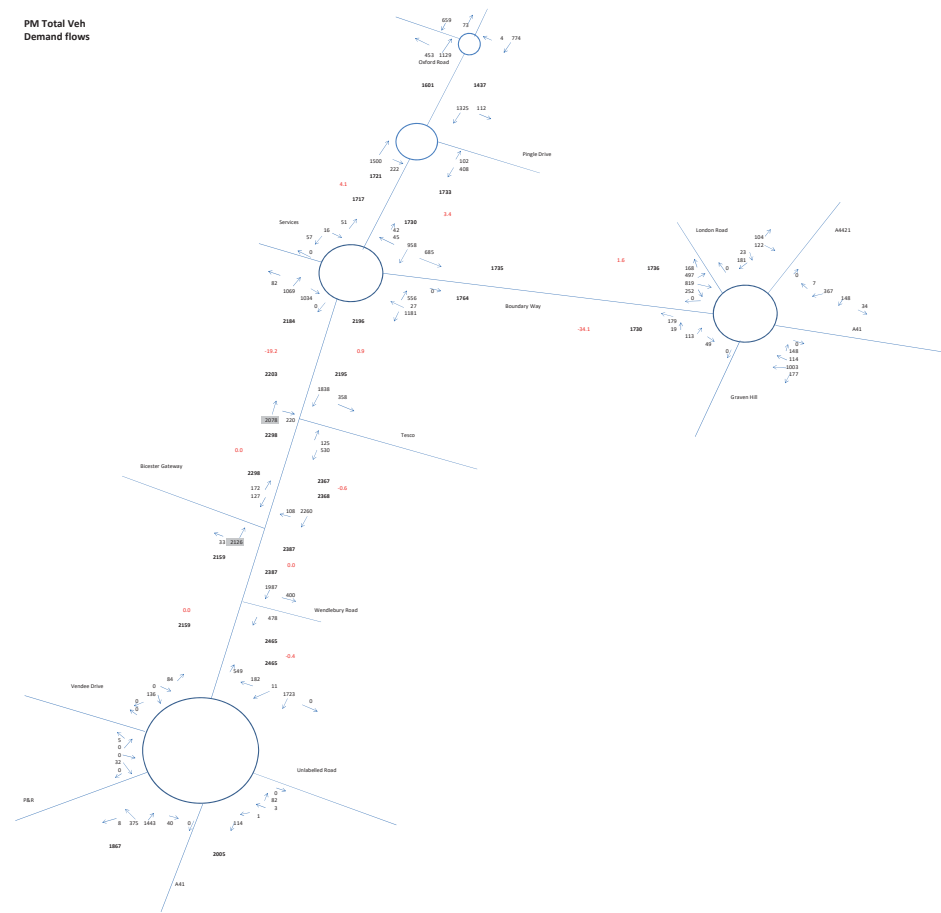
## Appendix E

Bicester Traffic Model Outputs

AM Total Veh Demand flows



PM Total Veh Demand flows





<b>Junctions 9</b>
<b>ARCADY 9 - Roundabout Module</b>
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2017
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<b>The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution</b>

**Filename:** Middleton Stoney - Kings End - Oxford Road - 2017-08-01 (Base).j9  
**Path:** N:\Projects\mbic2 170211\Analysis\Modelling\Middleton Stoney  
**Report generation date:** 23/08/2017 09:46:21

»2026 BTM, AM  
 »2026 BTM, PM

**Summary of junction performance**

	AM							PM						
	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
<b>2026 BTM</b>														
<b>Arm 1</b>	2.6	10.18	0.73	B	50.90	F	-12 % [Arm 2]	3.8	17.76	0.80	C	24.86	C	-5 % [Arm 2]
<b>Arm 2</b>	39.9	156.81	1.08	F				14.8	64.74	0.97	F			
<b>Arm 3</b>	1.1	3.60	0.53	A				4.1	8.67	0.81	A			

*There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.*

*Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.*

**File summary**

**File Description**

<b>Title</b>	Middleton Stoney - Kings End - Oxford Road
<b>Location</b>	Bicester
<b>Site number</b>	
<b>Date</b>	15/06/2017
<b>Version</b>	
<b>Status</b>	(new file)
<b>Identifier</b>	
<b>Client</b>	
<b>Jobnumber</b>	
<b>Enumerator</b>	MOTION\klewis
<b>Description</b>	

**Units**

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

**Analysis Options**

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	Delay	0.85	36.00	20.00

**Appendix F**  
 Model Output Files

**Demand Set Summary**

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2026 BTM	AM	ONE HOUR	07:45	09:15	15	✓
D8	2026 BTM	PM	ONE HOUR	17:00	18:30	15	✓

**Analysis Set Details**

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

# 2026 BTM, AM

**Data Errors and Warnings**

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

## Junction Network

**Junctions**

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1,2,3	50.90	F

**Junction Network Options**

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-12	Arm 2

## Arms

**Arms**

Arm	Name	Description
1	Middleton Stoney	
2	Kings End	
3	Oxford Road	

**Roundabout Geometry**

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.50	7.50	32.0	20.0	19.0	35.0	
2	3.50	4.50	10.0	80.0	19.0	35.0	
3	7.50	7.50	0.0	17.0	19.0	40.0	

**Slope / Intercept / Capacity****Roundabout Slope and Intercept used in model**

Arm	Final slope	Final intercept (PCU/hr)
1	0.699	1893
2	0.591	1315
3	0.749	2174

*The slope and intercept shown above include any corrections and adjustments.*

## Traffic Demand

**Demand Set Details**

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2026 BTM	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

## Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		ONE HOUR	✓	864	100.000
2		ONE HOUR	✓	770	100.000
3		ONE HOUR	✓	1018	100.000

## Origin-Destination Data

## Demand (Veh/hr)

From	To		
	1	2	3
1	0	111	753
2	2	0	768
3	290	728	0

## Vehicle Mix

## Heavy Vehicle Percentages

From	To		
	1	2	3
1	0	0	1
2	0	0	4
3	1	3	0

## Results

## Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.73	10.18	2.6	B	793	1189
2	1.08	156.81	39.9	F	707	1060
3	0.53	3.60	1.1	A	934	1401

## Main Results for each time segment

## 07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	650	163	546	1486	0.438	647	219	0.0	0.8	4.276	A
2	580	145	564	941	0.616	573	630	0.0	1.6	9.651	A
3	766	192	1	2121	0.361	764	1136	0.0	0.6	2.648	A

## 08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	777	194	654	1410	0.551	775	262	0.8	1.2	5.657	A
2	692	173	675	877	0.790	685	753	1.6	3.4	18.076	C
3	915	229	2	2121	0.431	914	1358	0.6	0.8	2.982	A

## 08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	951	238	801	1305	0.729	946	321	1.2	2.6	9.877	A

2	848	212	824	791	1.072	767	922	3.4	23.5	78.498	F
3	1121	280	2	2121	0.528	1119	1590	0.8	1.1	3.590	A

## 08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	951	238	802	1304	0.729	951	321	2.6	2.6	10.180	B
2	848	212	829	789	1.075	782	924	23.5	39.9	156.806	F
3	1121	280	2	2121	0.528	1121	1609	1.1	1.1	3.598	A

## 08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	777	194	655	1408	0.551	782	263	2.6	1.2	5.801	A
2	692	173	682	873	0.793	832	756	39.9	5.0	94.847	F
3	915	229	2	2121	0.432	917	1511	1.1	0.8	2.994	A

## 09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	650	163	549	1485	0.438	652	220	1.2	0.8	4.335	A
2	580	145	569	938	0.618	593	632	5.0	1.7	10.808	B
3	766	192	2	2121	0.361	767	1160	0.8	0.6	2.659	A



<b>Junctions 9</b>	
<b>ARCADY 9 - Roundabout Module</b>	
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2017	
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**Filename:** Middleton Stoney - Kings End - Oxford Road - 2017-08-01 (BTM With Mitigation).j9

**Path:** N:\Projects\lmbic2 170211\Analysis\Modelling\Middleton Stoney

**Report generation date:** 23/08/2017 10:14:02

»2026 BTM + Development, AM

»2026 BTM + Development, PM

#### Summary of junction performance

	AM							PM						
	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
<b>2026 BTM + Development</b>														
<b>Arm 1</b>	4.5	15.63	0.82	C	16.11	C	0 % [Arm 2]	5.0	23.29	0.84	C	15.31	C	3 % [Arm 1]
<b>Arm 2</b>	7.6	32.16	0.90	D				2.6	11.01	0.73	B			
<b>Arm 3</b>	1.1	3.65	0.54	A				7.0	13.82	0.88	B			

*There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.*

*Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.*

#### File summary

##### File Description

<b>Title</b>	Middleton Stoney - Kings End - Oxford Road
<b>Location</b>	Bicester
<b>Site number</b>	
<b>Date</b>	15/06/2017
<b>Version</b>	
<b>Status</b>	(new file)
<b>Identifier</b>	
<b>Client</b>	
<b>Jobnumber</b>	
<b>Enumerator</b>	MOTION\klewis
<b>Description</b>	

#### Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

#### Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	Delay	0.85	36.00	20.00

## Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2026 BTM + Development	AM	ONE HOUR	07:45	09:15	15	✓
D10	2026 BTM + Development	PM	ONE HOUR	17:00	18:30	15	✓

## Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

## 2026 BTM + Development, AM

## Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

## Junction Network

## Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1,2,3	16.11	C

## Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	0	Arm 2

## Arms

## Arms

Arm	Name	Description
1	Middleton Stoney	
2	Kings End	
3	Oxford Road	

## Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.50	7.50	32.0	20.0	19.0	35.0	
2	3.50	7.50	12.0	80.0	19.0	35.0	
3	7.50	7.50	0.0	17.0	19.0	40.0	

## Slope / Intercept / Capacity

## Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.699	1893
2	0.667	1679
3	0.749	2174

*The slope and intercept shown above include any corrections and adjustments.*

## Traffic Demand

## Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	2026 BTM + Development	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00



**Demand overview (Traffic)**

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		ONE HOUR	✓	974	100.000
2		ONE HOUR	✓	825	100.000
3		ONE HOUR	✓	1031	100.000

**Origin-Destination Data**

Demand (Veh/hr)

From	To		
	1	2	3
1	0	111	863
2	2	0	823
3	298	733	0

**Vehicle Mix**

Heavy Vehicle Percentages

From	To		
	1	2	3
1	0	0	1
2	0	0	3
3	1	3	0

**Results**

**Results Summary for whole modelled period**

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.82	15.63	4.5	C	894	1341
2	0.90	32.16	7.6	D	757	1136
3	0.54	3.65	1.1	A	946	1419

**Main Results for each time segment**

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	733	183	550	1483	0.494	729	225	0.0	1.0	4.752	A
2	621	155	646	1208	0.514	617	633	0.0	1.0	6.053	A
3	776	194	1	2122	0.366	774	1262	0.0	0.6	2.666	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	876	219	658	1406	0.623	873	269	1.0	1.6	6.718	A
2	742	185	774	1124	0.660	738	758	1.0	1.9	9.243	A
3	927	232	2	2121	0.437	926	1510	0.6	0.8	3.010	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1072	268	806	1301	0.824	1062	330	1.6	4.3	14.448	B

2	908	227	941	1015	0.895	889	927	1.9	6.7	25.484	D
3	1135	284	2	2121	0.535	1134	1828	0.8	1.1	3.642	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	1072	268	807	1300	0.825	1072	330	4.3	4.5	15.630	C
2	908	227	950	1009	0.900	905	929	6.7	7.6	32.155	D
3	1135	284	2	2121	0.535	1135	1852	1.1	1.1	3.650	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	876	219	660	1405	0.623	887	270	4.5	1.7	7.094	A
2	742	185	786	1116	0.664	764	761	7.6	2.0	10.816	B
3	927	232	2	2121	0.437	928	1548	1.1	0.8	3.020	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	733	183	552	1482	0.495	736	226	1.7	1.0	4.844	A
2	621	155	652	1204	0.516	625	636	2.0	1.1	6.259	A
3	776	194	2	2122	0.366	777	1276	0.8	0.6	2.680	A



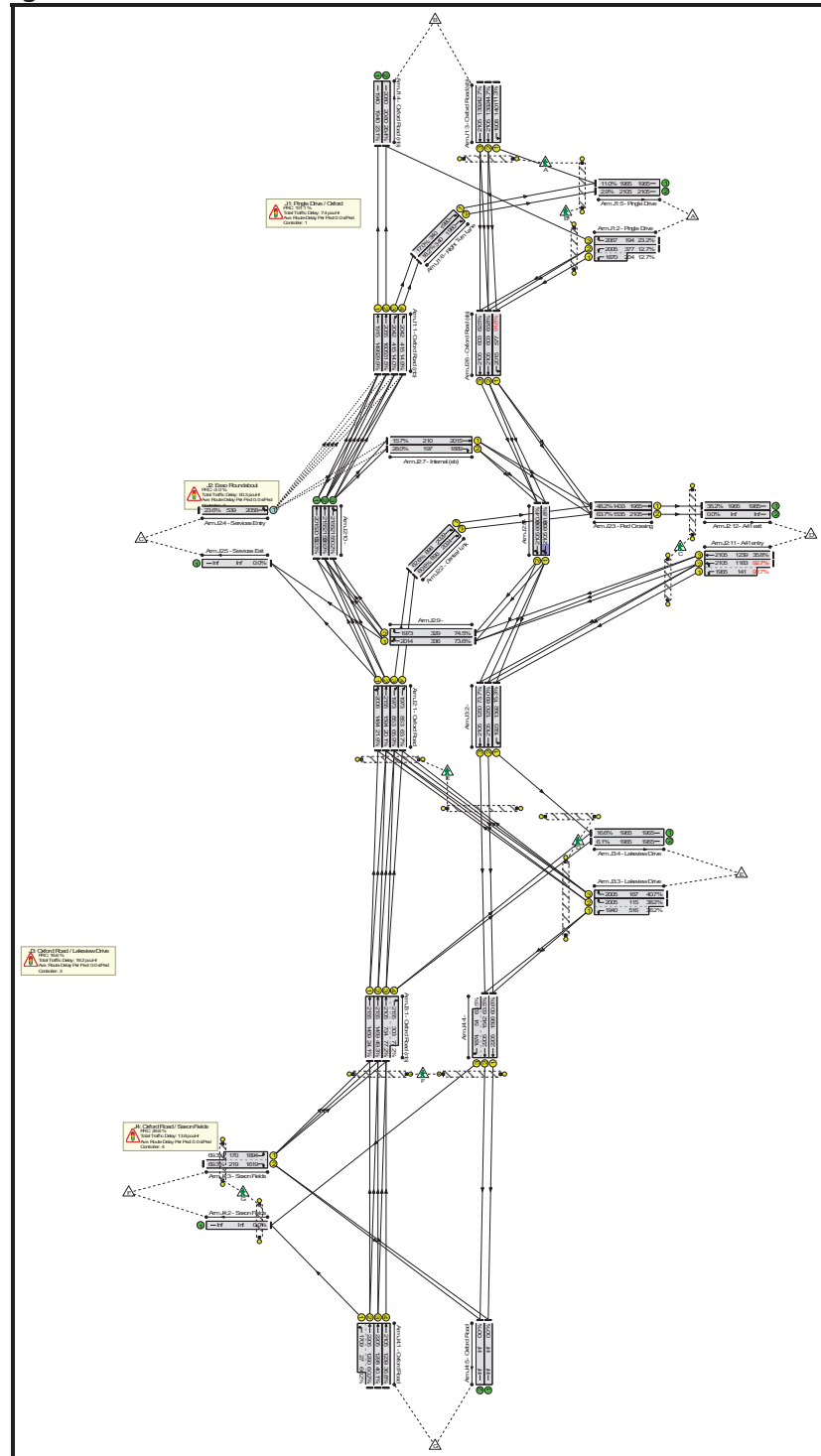
Basic Results Summary  
**Basic Results Summary**

**User and Project Details**

<b>Project:</b>	<b>Bicester Office Park</b>
<b>Title:</b>	<b>Oxford Road Corridor</b>
<b>Location:</b>	Bicester
<b>File name:</b>	Oxford Road Model (inc BG Improvements) - 2017-08-01 Base.lsg3x
<b>Author:</b>	
<b>Company:</b>	Motion
<b>Address:</b>	
<b>Notes:</b>	

Basic Results Summary

Scenario 1: '2026 AM BTM' (FG1: '2026 AM BTM', Plan 1: 'AM Peak')  
Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	-	-	-	-	-	92.7%	117	10	0	90.7	-	-
J1: Pingle Drive / Oxford	-	-	-	-	-	-	-	-	-	-	44.7%	0	0	0	7.4	-	-
1/1	Oxford Road (nb) Ahead	U	C1:A	-	2	148	-	448	1915	1496	29.9%	-	-	-	0.3	2.2	1.1
1/2	Oxford Road (nb) Ahead	U	C1:A	-	2	148	-	505	2055	1605	31.5%	-	-	-	0.4	3.1	2.6
1/3	Oxford Road (nb) Right	U	C1:F	-	2	37	-	58	2042	415	14.0%	-	-	-	0.4	25.8	1.4
1/4	Oxford Road (nb) Right	U	C1:F	-	2	37	-	62	2042	415	14.9%	-	-	-	0.6	35.5	1.5
2/2+2/1	Pingle Drive Left	U	C1:E	-	2	43	-	74	2005:1870	377+204	12.7 : 12.7%	-	-	-	0.7	32.3	1.1
2/3	Pingle Drive Right	U	C1:D	-	2	16	-	45	2067	194	23.2%	-	-	-	0.7	52.4	1.3
3/1	Oxford Road (sb) Left	U	C1:C	-	2	139	-	158	1908	1401	11.3%	-	-	-	0.2	5.2	1.4
3/2	Oxford Road (sb) Ahead	U	C1:B	-	2	125	-	623	2105	1392	44.7%	-	-	-	1.8	10.2	8.9
3/3	Oxford Road (sb) Ahead	U	C1:B	-	2	125	-	595	2105	1392	42.7%	-	-	-	1.6	10.0	8.3
4/1	Oxford Road (nb)	U	-	-	-	-	-	448	1940	1940	23.1%	-	-	-	0.2	1.2	0.2
4/2	Oxford Road (nb)	U	-	-	-	-	-	550	2080	2080	26.4%	-	-	-	0.2	1.2	0.2
5/1	Pingle Drive	U	-	-	-	-	-	216	1965	1965	11.0%	-	-	-	0.1	1.0	0.1
5/2	Pingle Drive	U	-	-	-	-	-	62	2105	2105	2.9%	-	-	-	0.0	0.9	0.0
6/1	Right Turn Lane Right	U	C1:G	-	2	31	-	58	1980	340	17.0%	-	-	-	0.1	8.0	0.1
6/2	Right Turn Lane Right	U	C1:G	-	2	31	-	62	1980	340	18.2%	-	-	-	0.2	9.6	0.2
Ped Link: P1	Unnamed Ped Link	-	C1:H	-	2	19	-	0	-	0	0.0%	-	-	-	-	-	-

Basic Results Summary

Ped Link: P2	Unnamed Ped Link	-	C1:I		2	125	-	0	-	46875	0.0%	-	-	-	0.0	0.0	0.0
Ped Link: P3	Unnamed Ped Link	-	C1:J		2	113	-	0	-	0	0.0%	-	-	-	-	-	-
<b>J2: Esso Roundabout</b>	-	-	-		-	-	-	-	-	-	<b>92.7%</b>	<b>117</b>	<b>10</b>	<b>0</b>	<b>50.3</b>	-	-
1/1	Oxford Road Left Ahead	U	C2:A		2	140	-	325	2006	1484	21.9%	-	-	-	0.4	4.0	1.8
1/2	Oxford Road Ahead	U	C2:A		2	140	-	320	2155	1594	20.1%	-	-	-	0.3	3.9	2.1
1/3	Oxford Road Right	U	C2:F		2	81	-	562	1973	853	65.9%	-	-	-	2.6	16.9	11.5
1/4	Oxford Road Right	U	C2:F		2	81	-	543	1973	853	63.7%	-	-	-	2.4	16.0	10.3
2/1	Central Link Right	U	C2:G		2	83	-	562	2029	898	62.6%	-	-	-	0.9	5.6	1.5
2/2	Central Link Right	U	C2:G		2	83	-	543	2024	896	60.6%	-	-	-	0.8	5.3	1.4
3/1	Ped Crossing Ahead	U	C2:J		2	138	-	691	1965	1433	48.2%	-	-	-	1.1	5.7	3.6
3/2	Ped Crossing Ahead	U	C2:J		2	138	-	977	2105	1535	63.7%	-	-	-	1.6	5.7	4.7
4/1	Services Entry Left Ahead	O	-		-	-	-	127	2058	539	23.6%	117	10	0	0.2	4.5	0.4
6/1	Oxford Road (sb) Left	U	C2:B		2	53	-	530	2015	577	<b>91.8%</b>	-	-	-	8.7	59.1	18.7
6/2	Oxford Road (sb) Ahead	U	C2:B		2	53	-	385	2105	603	63.8%	-	-	-	3.5	33.1	10.1
6/3	Oxford Road (sb) Ahead	U	C2:B		2	53	-	377	2105	603	62.5%	-	-	-	3.4	32.3	9.8
7/1	Internal (eb) Ahead	U	C2:C		2	18	-	33	2015	210	15.7%	-	-	-	0.5	49.3	0.9
7/2	Internal (eb) Right	U	C2:C		2	18	-	55	1889	197	28.0%	-	-	-	0.8	52.2	1.6
8/1	Right Ahead	U	C2:E		2	59	-	413	2105	669	61.8%	-	-	-	1.5	12.7	2.6
8/2	Right Ahead	U	C2:E		2	59	-	404	2105	669	60.4%	-	-	-	1.4	12.4	2.3
9/1	Ahead Right	U	C2:H		2	30	-	247	2014	336	73.6%	-	-	-	3.6	52.3	<b>7.8</b>

Basic Results Summary

9/2	Right	U	C2:H		2	30	-	245	1973	329	74.5%	-	-	-	3.3	48.5	7.7
10/1	Ahead	U	-		-	-	-	449	2015	2015	22.3%	-	-	-	0.1	1.1	0.1
10/2	Ahead	U	-		-	-	-	580	2155	2155	26.9%	-	-	-	0.2	1.1	0.2
10/3	Ahead Right	U	-		-	-	-	5	2155	2155	0.2%	-	-	-	0.0	0.8	0.0
11/2+11/1	A41 entry Ahead Left	U	C2:D		2	111	-	1228	2105:1965	1183+141	<b>92.7%</b> 92.7%	-	-	-	11.3	33.1	33.8
11/3	A41 entry Ahead	U	C2:D		2	111	-	444	2105	1239	35.8%	-	-	-	1.6	12.6	6.6
12/1	A41 exit	U	-		-	-	-	691	1965	1965	35.2%	-	-	-	0.3	1.4	0.3
Ped Link: P1	Unnamed Ped Link	-	C2:K		2	30	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	C2:I		2	53	-	0	-	0	0.0%	-	-	-	-	-	-
<b>J3: Oxford Road / Lakeview Drive</b>	-	-	-		-	-	-	-	-	-	<b>77.2%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>19.2</b>	-	-
1/1	Oxford Road (nb) Ahead	U	C3:A		2	128	-	352	2155	1459	24.1%	-	-	-	0.3	3.2	1.2
1/2	Oxford Road (nb) Ahead	U	C3:A		2	128	-	719	2155	1459	49.3%	-	-	-	0.9	4.6	3.8
1/3+1/4	Oxford Road (nb) Ahead Right	U	C3:A C3:E		2	128:25	-	801	2105:2155	734+303	<b>77.2%</b> 77.2%	-	-	-	4.7	21.1	<b>28.9</b>
2/1	Left	U	C3:C		2	137	-	213	1923	1392	15.3%	-	-	-	0.2	3.6	1.3
2/2	Ahead	U	C3:B		2	112	-	863	2105	1250	69.0%	-	-	-	4.8	20.2	17.5
2/3	Ahead	U	C3:B		2	112	-	921	2105	1250	73.7%	-	-	-	4.6	18.0	16.2
3/2+3/1	Lakeview Drive Right Left	U	C3:D C3:F		2	14:53	39	241	2005:1940	115+516	<b>38.2%</b> 38.2%	-	-	-	2.3	34.5	4.7
3/3	Lakeview Drive Right	U	C3:D		2	14	-	68	2005	167	40.7%	-	-	-	1.1	59.9	2.2
4/1	Lakeview Drive	U	-		-	-	-	327	1965	1965	16.6%	-	-	-	0.1	1.1	0.1
4/2	Lakeview Drive	U	-		-	-	-	120	1965	1965	6.1%	-	-	-	0.0	1.0	0.0

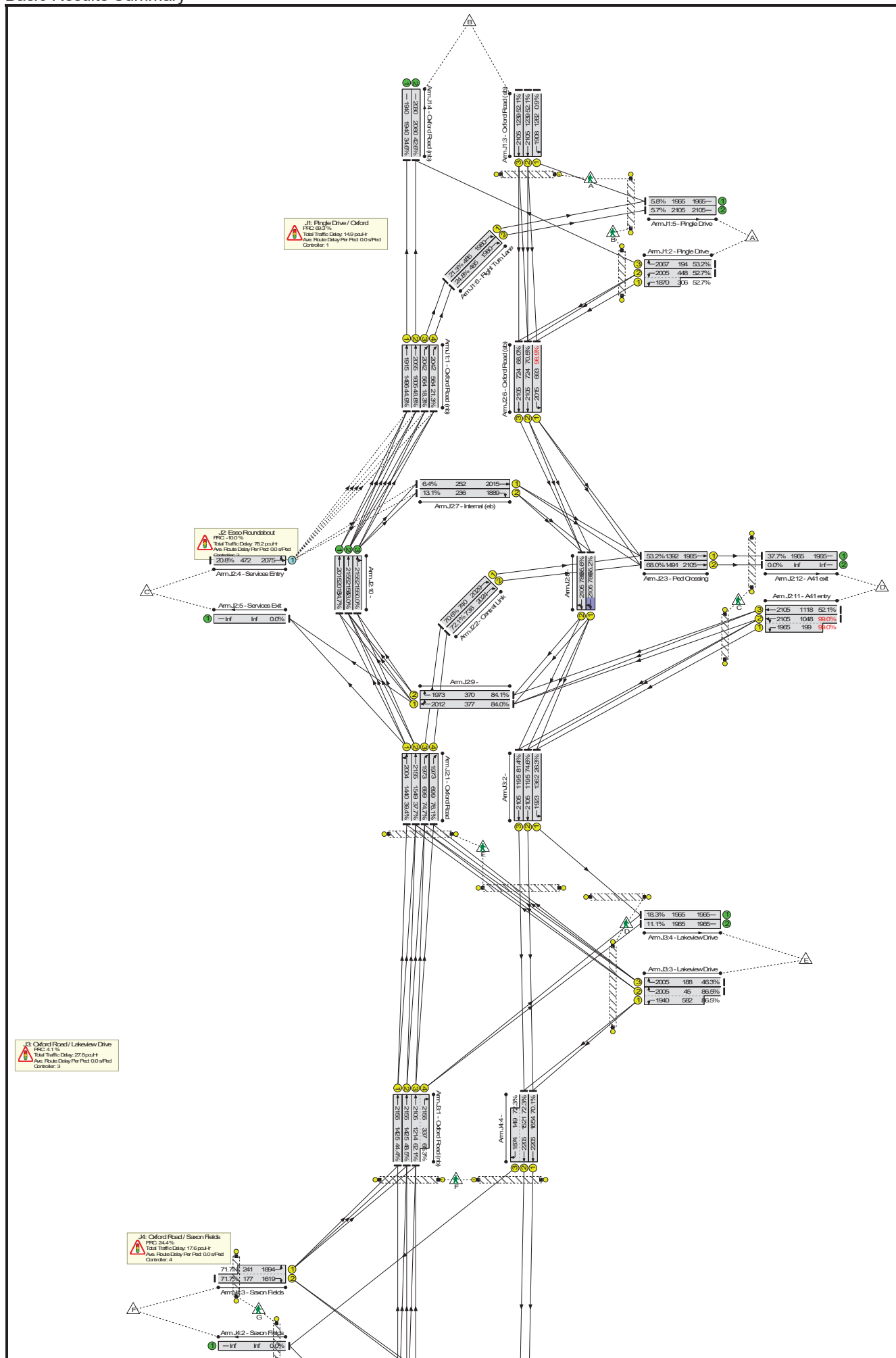
Basic Results Summary  
**Scenario 2: '2026 PM BTM'** (FG2: '2026 PM BTM', Plan 1: 'AM Peak')  
**Network Layout Diagram**

Basic Results Summary

Ped Link: P1	Unnamed Ped Link	-	C3:G		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	C3:H		2	25	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	C3:I		2	25	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	C3:K		2	107	-	0	-	0	0.0%	-	-	-	-	-	-
<b>J4: Oxford Road / Saxon Fields</b>	-	-	-		-	-	-	-	-	-	<b>69.3%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13.8</b>	-	-
1/2+1/1	Oxford Road Ahead Left	U	C4:C	C4:J	2	111:134	23	793	2205:1709	1290+27	60.2 : 60.2%	-	-	-	3.5	16.0	15.2
1/3	Oxford Road Ahead	U	C4:C		2	111	-	521	2205	1298	40.1%	-	-	-	1.9	13.1	8.6
1/4	Oxford Road Ahead	U	C4:C		2	111	-	456	2105	1239	36.8%	-	-	-	1.6	12.8	7.4
3/2+3/1	Saxon Fields Left Right	U	C4:D	C4:I	2	24:43	19	270	1619:1894	219+170	69.3 : 69.3%	-	-	-	3.8	50.6	5.1
4/1	Ahead	U	C4:A		2	137	-	967	2205	1596	60.6%	-	-	-	1.3	5.0	4.0
4/2+4/3	Right Ahead	U	C4:A C4:B		2	137:21	-	1014	2205:1874	1542+54	63.5 : 63.5%	-	-	-	1.6	5.9	3.4
Ped Link: P1	Unnamed Ped Link	-	C4:G		1	5	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	C4:H		2	23	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	C4:F		2	126	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	C4:E		1	7	-	0	-	0	0.0%	-	-	-	-	-	-
		C1	PRC for Signalled Lanes (%)		101.1	Total Delay for Signalled Lanes (pcuHr):		7.00	Cycle Time (s):		192						
		C2	PRC for Signalled Lanes (%)		-3.0	Total Delay for Signalled Lanes (pcuHr):		49.58	Cycle Time (s):		192						
		C3	PRC for Signalled Lanes (%)		16.6	Total Delay for Signalled Lanes (pcuHr):		19.04	Cycle Time (s):		192						
		C4	PRC for Signalled Lanes (%)		29.8	Total Delay for Signalled Lanes (pcuHr):		13.83	Cycle Time (s):		192						
			PRC Over All Lanes (%)		-3.0	Total Delay Over All Lanes (pcuHr):		90.74									

Basic Results Summary

Basic Results Summary



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	99.0%	76	22	0	138.5	-	-
J1: Pingle Drive / Oxford	-	-	-		-	-	-	-	-	-	53.2%	0	0	0	14.9	-	-
1/1	Oxford Road (nb) Ahead	U	C1:A		2	148	-	671	1915	1496	44.9%	-	-	-	0.8	4.3	3.6
1/2	Oxford Road (nb) Ahead	U	C1:A		2	148	-	783	2055	1605	48.8%	-	-	-	0.8	3.8	3.5
1/3	Oxford Road (nb) Right	U	C1:F		2	51	-	103	2042	564	18.3%	-	-	-	0.9	31.4	2.5
1/4	Oxford Road (nb) Right	U	C1:F		2	51	-	120	2042	564	21.3%	-	-	-	0.8	23.6	2.7
2/2+2/1	Pingle Drive Left	U	C1:E		2	57	-	397	2005:1870	448+306	52.7 : 52.7%	-	-	-	3.4	30.8	5.6
2/3	Pingle Drive Right	U	C1:D		2	16	-	103	2067	194	53.2%	-	-	-	1.7	61.1	3.2
3/1	Oxford Road (sb) Left	U	C1:C		2	125	-	11	1908	1262	0.9%	-	-	-	0.0	7.1	0.1
3/2	Oxford Road (sb) Ahead	U	C1:B		2	111	-	645	2105	1239	52.1%	-	-	-	2.6	14.7	10.8
3/3	Oxford Road (sb) Ahead	U	C1:B		2	111	-	645	2105	1239	52.1%	-	-	-	2.6	14.7	10.8
4/1	Oxford Road (nb)	U	-		-	-	-	671	1940	1940	34.6%	-	-	-	0.3	1.4	0.3
4/2	Oxford Road (nb)	U	-		-	-	-	886	2080	2080	42.6%	-	-	-	0.4	1.5	0.4
5/1	Pingle Drive	U	-		-	-	-	114	1965	1965	5.8%	-	-	-	0.0	1.0	0.0
5/2	Pingle Drive	U	-		-	-	-	120	2105	2105	5.7%	-	-	-	0.0	0.9	0.0
6/1	Right Turn Lane Right	U	C1:G		2	45	-	103	1980	485	21.3%	-	-	-	0.2	6.9	0.2
6/2	Right Turn Lane Right	U	C1:G		2	45	-	120	1980	485	24.8%	-	-	-	0.3	8.5	0.3
Ped Link: P1	Unnamed Ped Link	-	C1:H		2	33	-	0	-	0	0.0%	-	-	-	-	-	-

Basic Results Summary

Ped Link: P2	Unnamed Ped Link	-	C1:I		2	111	-	0	-	41625	0.0%	-	-	-	0.0	0.0	0.0
Ped Link: P3	Unnamed Ped Link	-	C1:J		2	99	-	0	-	0	0.0%	-	-	-	-	-	-
J2: Esso Roundabout	-	-	-		-	-	-	-	-	-	99.0%	76	22	0	78.2	-	-
1/1	Oxford Road Left Ahead	U	C2:A		2	136	-	567	2004	1440	39.4%	-	-	-	0.5	3.2	2.4
1/2	Oxford Road Ahead	U	C2:A		2	136	-	584	2155	1549	37.7%	-	-	-	0.5	3.2	2.4
1/3	Oxford Road Right	U	C2:F		2	66	-	522	1973	699	74.7%	-	-	-	4.1	28.5	14.7
1/4	Oxford Road Right	U	C2:F		2	66	-	532	1973	699	76.1%	-	-	-	4.0	27.1	14.9
2/1	Central Link Right	U	C2:G		2	68	-	522	2029	740	70.6%	-	-	-	1.2	8.4	1.8
2/2	Central Link Right	U	C2:G		2	68	-	532	2024	738	72.1%	-	-	-	1.3	8.9	1.9
3/1	Ped Crossing Ahead	U	C2:J		2	134	-	741	1965	1392	53.2%	-	-	-	1.7	8.3	5.8
3/2	Ped Crossing Ahead	U	C2:J		2	134	-	1014	2105	1491	68.0%	-	-	-	2.3	8.3	8.8
4/1	Services Entry Left Ahead	O	-		-	-	-	98	2075	472	20.8%	76	22	0	0.1	5.2	0.5
6/1	Oxford Road (sb) Left	U	C2:B		2	64	-	685	2015	693	98.9%	-	-	-	15.9	83.4	29.6
6/2	Oxford Road (sb) Ahead	U	C2:B		2	64	-	510	2105	724	70.5%	-	-	-	4.0	28.4	11.2
6/3	Oxford Road (sb) Ahead	U	C2:B		2	64	-	492	2105	724	68.0%	-	-	-	3.7	27.3	10.0
7/1	Internal (eb) Ahead	U	C2:C		2	22	-	16	2015	252	6.4%	-	-	-	0.2	44.4	0.4
7/2	Internal (eb) Right	U	C2:C		2	22	-	31	1889	236	13.1%	-	-	-	0.4	45.8	0.8
8/1	Right Ahead	U	C2:E		2	70	-	515	2105	789	65.2%	-	-	-	1.7	12.1	2.6
8/2	Right Ahead	U	C2:E		2	70	-	518	2105	789	65.6%	-	-	-	1.8	12.3	2.8
9/1	Ahead Right	U	C2:H		2	34	-	317	2012	377	84.0%	-	-	-	4.8	54.6	10.9



Basic Results Summary

9/2	Right	U	C2:H		2	34	-	311	1973	370	84.1%	-	-	-	4.4	51.3	10.7
10/1	Ahead	U	-		-	-	-	699	2015	2015	34.7%	-	-	-	0.3	1.4	0.3
10/2	Ahead	U	-		-	-	-	927	2155	2155	43.0%	-	-	-	0.4	1.5	1.6
10/3	Ahead Right	U	-		-	-	-	0	2155	2155	0.0%	-	-	-	0.0	0.0	0.0
11/2+11/1	A41 entry Ahead Left	U	C2:D		2	100	-	1234	2105:1965	1048+199	99.0 : 99.0%	-	-	-	21.6	62.9	43.8
11/3	A41 entry Ahead	U	C2:D		2	100	-	583	2105	1118	52.1%	-	-	-	2.9	17.9	10.6
12/1	A41 exit	U	-		-	-	-	741	1965	1965	37.7%	-	-	-	0.3	1.5	0.3
Ped Link: P1	Unnamed Ped Link	-	C2:K		2	34	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	C2:I		2	64	-	0	-	0	0.0%	-	-	-	-	-	-
J3: Oxford Road / Lakeview Drive	-	-	-		-	-	-	-	-	-	86.5%	0	0	0	27.8	-	-
1/1	Oxford Road (nb) Ahead	U	C3:A		2	125	-	633	2155	1425	44.4%	-	-	-	0.8	4.3	8.2
1/2	Oxford Road (nb) Ahead	U	C3:A		2	125	-	692	2155	1425	48.5%	-	-	-	1.1	5.5	8.3
1/3+1/4	Oxford Road (nb) Ahead Right	U	C3:A C3:E		2	125:28	-	974	2105:2155	1214+337	62.1 : 65.3%	-	-	-	4.3	16.1	30.8
2/1	Left	U	C3:C		2	134	-	358	1923	1362	26.3%	-	-	-	1.0	10.0	4.3
2/2	Ahead	U	C3:B		2	107	-	891	2105	1195	74.6%	-	-	-	5.8	23.3	19.2
2/3	Ahead	U	C3:B		2	107	-	973	2105	1195	81.4%	-	-	-	5.5	20.3	17.2
3/2+3/1	Lakeview Drive Right Left	U	C3:D C3:F		2	16:58	42	542	2005:1940	45+582	86.5 : 86.5%	-	-	-	7.7	51.3	15.9
3/3	Lakeview Drive Right	U	C3:D		2	16	-	87	2005	188	46.3%	-	-	-	1.4	58.9	2.6
4/1	Lakeview Drive	U	-		-	-	-	359	1965	1965	18.3%	-	-	-	0.1	1.1	0.1
4/2	Lakeview Drive	U	-		-	-	-	219	1965	1965	11.1%	-	-	-	0.1	1.1	4.1

Basic Results Summary

Ped Link: P1	Unnamed Ped Link	-	C3:G		1	7	-	0	-	0	0.0%	-	-	-	-	-	-		
Ped Link: P2	Unnamed Ped Link	-	C3:H		2	28	-	0	-	0	0.0%	-	-	-	-	-	-		
Ped Link: P3	Unnamed Ped Link	-	C3:I		2	28	-	0	-	0	0.0%	-	-	-	-	-	-		
Ped Link: P4	Unnamed Ped Link	-	C3:K		2	102	-	0	-	0	0.0%	-	-	-	-	-	-		
J4: Oxford Road / Saxon Fields	-	-	-		-	-	-	-	-	-	72.3%	0	0	0	17.6	-	-		
1/2+1/1	Oxford Road Ahead Left	U	C4:C C4:J		2	116:135	19	886	2205:1709	1328+51	64.2 : 64.2%	-	-	-	3.8	15.3	17.5		
1/3	Oxford Road Ahead	U	C4:C		2	116	-	656	2205	1355	48.4%	-	-	-	2.4	13.0	11.6		
1/4	Oxford Road Ahead	U	C4:C		2	116	-	617	2105	1294	47.7%	-	-	-	2.2	13.0	10.7		
3/2+3/1	Saxon Fields Left Right	U	C4:D C4:I		2	19:38	19	300	1619:1894	177+241	71.7 : 71.7%	-	-	-	4.4	52.4	6.1		
4/1	Ahead	U	C4:A		2	142	-	1159	2205	1654	70.1%	-	-	-	2.0	6.1	8.7		
4/2+4/3	Right Ahead	U	C4:A C4:B		2	142:21	-	1208	2205:1874	1521+149	72.3 : 72.3%	-	-	-	2.9	8.7	7.0		
Ped Link: P1	Unnamed Ped Link	-	C4:G		1	5	-	0	-	0	0.0%	-	-	-	-	-	-		
Ped Link: P2	Unnamed Ped Link	-	C4:H		2	18	-	0	-	0	0.0%	-	-	-	-	-	-		
Ped Link: P3	Unnamed Ped Link	-	C4:F		2	131	-	0	-	0	0.0%	-	-	-	-	-	-		
Ped Link: P4	Unnamed Ped Link	-	C4:E		1	6	-	0	-	0	0.0%	-	-	-	-	-	-		
				C1	PRC for Signalised Lanes (%):				69.3	Total Delay for Signalised Lanes (pcuHr):				14.24	Cycle Time (s):				192
				C2	PRC for Signalised Lanes (%):				-10.0	Total Delay for Signalised Lanes (pcuHr):				77.15	Cycle Time (s):				192
				C3	PRC for Signalised Lanes (%):				4.1	Total Delay for Signalised Lanes (pcuHr):				27.57	Cycle Time (s):				192
				C4	PRC for Signalised Lanes (%):				24.4	Total Delay for Signalised Lanes (pcuHr):				17.62	Cycle Time (s):				192
				PRC Over All Lanes (%):				-10.0	Total Delay Over All Lanes (pcuHr):				138.54						

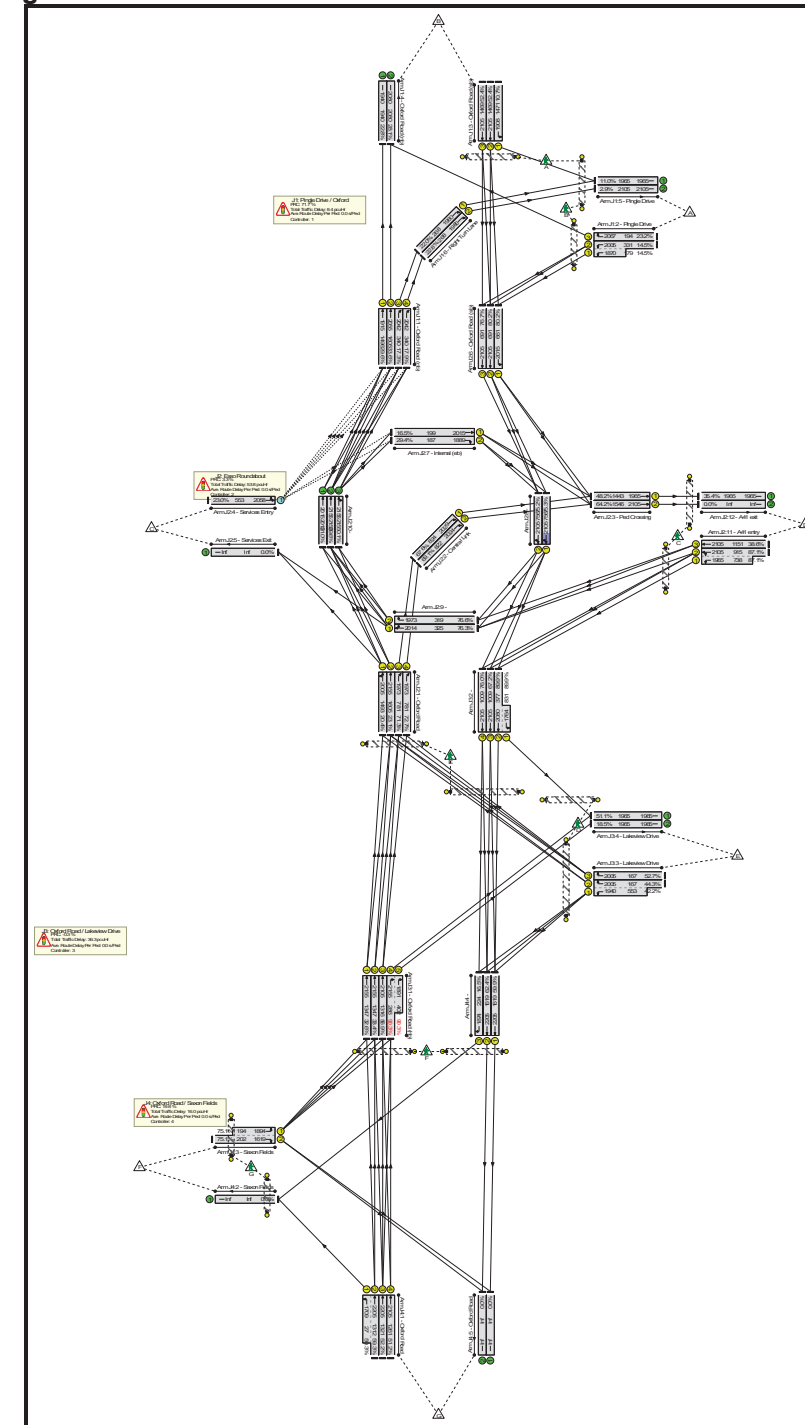
Basic Results Summary  
**Basic Results Summary**

**User and Project Details**

<b>Project:</b>	<b>Bicester Office Park</b>
<b>Title:</b>	<b>Oxford Road Corridor (with Mitigation)</b>
<b>Location:</b>	Bicester
<b>File name:</b>	Oxford Road Model (inc BG Improvements) - 2017-08-01 Mitigation.lsg3x
<b>Author:</b>	
<b>Company:</b>	Motion
<b>Address:</b>	
<b>Notes:</b>	

Basic Results Summary

**Scenario 9: '2026 BTM + Development AM' (FG3: '2026 AM BTM + Development', Plan 1: 'AM Peak')**  
**Network Layout Diagram**



## Basic Results Summary

**Network Results**

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	-	-	-	-	-	90.3%	111	16	0	114.5	-	-
J1: Pingle Drive / Oxford	-	-	-	-	-	-	-	-	-	-	52.4%	0	0	0	8.4	-	-
1/1	Oxford Road (nb) Ahead	U	C1:A	-	2	148	-	443	1915	1496	29.6%	-	-	-	0.3	2.8	1.5
1/2	Oxford Road (nb) Ahead	U	C1:A	-	2	148	-	540	2055	1605	33.6%	-	-	-	0.4	2.9	2.2
1/3	Oxford Road (nb) Right	U	C1:F	-	2	30	-	59	2042	340	17.3%	-	-	-	0.5	32.6	1.7
1/4	Oxford Road (nb) Right	U	C1:F	-	2	30	-	61	2042	340	17.9%	-	-	-	0.6	37.8	1.9
2/2+2/1	Pingle Drive Left	U	C1:E	-	2	36	-	74	2005:1870	331+179	14.5 : 14.5%	-	-	-	0.7	35.7	1.2
2/3	Pingle Drive Right	U	C1:D	-	2	16	-	45	2067	194	23.2%	-	-	-	0.7	52.4	1.3
3/1	Oxford Road (sb) Left	U	C1:C	-	2	146	-	158	1908	1471	10.7%	-	-	-	0.2	4.1	1.1
3/2	Oxford Road (sb) Ahead	U	C1:B	-	2	132	-	770	2105	1469	52.4%	-	-	-	2.0	9.5	10.2
3/3	Oxford Road (sb) Ahead	U	C1:B	-	2	132	-	770	2105	1469	52.4%	-	-	-	2.0	9.5	10.2
4/1	Oxford Road (nb)	U	-	-	-	-	-	443	1940	1940	22.8%	-	-	-	0.1	1.2	0.1
4/2	Oxford Road (nb)	U	-	-	-	-	-	585	2080	2080	28.1%	-	-	-	0.2	1.2	0.2
5/1	Pingle Drive	U	-	-	-	-	-	217	1965	1965	11.0%	-	-	-	0.1	1.0	0.1
5/2	Pingle Drive	U	-	-	-	-	-	61	2105	2105	2.9%	-	-	-	0.0	0.9	0.0
6/1	Right Turn Lane Right	U	C1:G	-	2	24	-	59	1980	268	22.0%	-	-	-	0.2	11.1	0.2
6/2	Right Turn Lane Right	U	C1:G	-	2	24	-	61	1980	268	22.8%	-	-	-	0.2	12.5	0.3
Ped Link: P1	Unnamed Ped Link	-	C1:H	-	2	12	-	0	-	0	0.0%	-	-	-	-	-	-

## Basic Results Summary

Ped Link: P2	Unnamed Ped Link	-	C1:I	-	2	132	-	0	-	49500	0.0%	-	-	-	0.0	0.0	0.0
Ped Link: P3	Unnamed Ped Link	-	C1:J	-	2	120	-	0	-	0	0.0%	-	-	-	-	-	-
J2: Esso Roundabout	-	-	-	-	-	-	-	-	-	-	87.1%	111	16	0	53.8	-	-
1/1	Oxford Road Left Ahead	U	C2:A	-	2	141	-	304	2005	1493	20.4%	-	-	-	0.3	3.8	2.0
1/2	Oxford Road Ahead	U	C2:A	-	2	141	-	371	2155	1605	23.1%	-	-	-	0.4	3.4	2.3
1/3	Oxford Road Right	U	C2:F	-	2	74	-	557	1973	781	71.3%	-	-	-	3.1	19.8	13.0
1/4	Oxford Road Right	U	C2:F	-	2	74	-	568	1973	781	72.7%	-	-	-	3.1	19.5	13.2
2/1	Central Link Right	U	C2:G	-	2	76	-	557	2029	824	67.6%	-	-	-	1.1	7.0	1.7
2/2	Central Link Right	U	C2:G	-	2	76	-	568	2024	822	69.1%	-	-	-	1.2	7.3	1.8
3/1	Ped Crossing Ahead	U	C2:J	-	2	139	-	695	1965	1443	48.2%	-	-	-	1.3	6.5	4.6
3/2	Ped Crossing Ahead	U	C2:J	-	2	139	-	993	2105	1546	64.2%	-	-	-	1.8	6.6	6.8
4/1	Services Entry Left Ahead	O	-	-	-	-	-	127	2058	553	23.0%	111	16	0	0.2	4.4	0.4
6/1	Oxford Road (sb) Left	U	C2:B	-	2	61	-	530	2015	661	80.2%	-	-	-	5.6	37.8	15.0
6/2	Oxford Road (sb) Ahead	U	C2:B	-	2	61	-	554	2105	691	80.2%	-	-	-	5.5	36.0	15.5
6/3	Oxford Road (sb) Ahead	U	C2:B	-	2	61	-	530	2105	691	76.7%	-	-	-	5.3	35.8	14.5
7/1	Internal (eb) Ahead	U	C2:C	-	2	17	-	33	2015	199	16.5%	-	-	-	0.5	50.4	0.9
7/2	Internal (eb) Right	U	C2:C	-	2	17	-	55	1889	187	29.4%	-	-	-	0.8	53.6	1.6
8/1	Right Ahead	U	C2:E	-	2	67	-	570	2105	756	75.3%	-	-	-	2.5	16.0	3.7
8/2	Right Ahead	U	C2:E	-	2	67	-	569	2105	756	75.2%	-	-	-	2.4	15.2	4.0
9/1	Ahead Right	U	C2:H	-	2	29	-	248	2014	325	76.3%	-	-	-	3.7	53.3	8.1

## Basic Results Summary

9/2	Right	U	C2:H		2	29	-	244	1973	319	76.6%	-	-	-	3.3	49.2	7.9
10/1	Ahead	U	-		-	-	-	424	2015	2015	21.0%	-	-	-	0.1	1.1	0.1
10/2	Ahead	U	-		-	-	-	637	2155	2155	29.6%	-	-	-	0.2	1.2	0.2
10/3	Ahead Right	U	-		-	-	-	3	2155	2155	0.1%	-	-	-	0.0	0.8	0.0
11/2+11/1	A41 entry Ahead Left	U	C2:D		2	103	-	1440	2105:1965	915+738	87.1 : 87.1%	-	-	-	9.4	23.6	19.2
11/3	A41 entry Ahead	U	C2:D		2	103	-	444	2105	1151	38.6%	-	-	-	1.9	15.0	7.3
12/1	A41 exit	U	-		-	-	-	695	1965	1965	35.4%	-	-	-	0.3	1.4	0.3
Ped Link: P1	Unnamed Ped Link	-	C2:K		2	29	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	C2:L		2	61	-	0	-	0	0.0%	-	-	-	-	-	-
<b>J3: Oxford Road / Lakeview Drive</b>	-	-	-		-	-	-	-	-	-	<b>90.3%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>36.3</b>	-	-
1/1	Oxford Road (nb) Ahead	U	C3:A		2	118	-	439	2155	1347	32.6%	-	-	-	0.8	6.2	2.5
1/2	Oxford Road (nb) Ahead	U	C3:A		2	118	-	450	2155	1347	33.4%	-	-	-	0.9	6.9	4.9
1/3	Oxford Road (nb) Ahead	U	C3:A		2	118	-	749	2105	1316	56.9%	-	-	-	1.6	7.8	11.2
1/4+1/5	Oxford Road (nb) Right	U	C3:E		2	47	-	621	2155:1891	286+402	90.3 : 90.3%	-	-	-	9.2	53.2	15.7
2/2+2/1	Left Ahead	U	C3:C		2	115	-	1086	2080:1764	377+831	89.9 : 89.9%	-	-	-	8.5	28.3	25.6
2/3	Ahead	U	C3:B		2	90	-	678	2105	1009	67.2%	-	-	-	7.1	37.5	18.2
2/4	Ahead	U	C3:B		2	90	-	767	2105	1009	76.0%	-	-	-	3.5	16.5	9.3
3/2+3/1	Lakeview Drive Right Left	U	C3:D	C3:F	2	14:75	61	307	2005:1940	167+553	44.3 : 42.2%	-	-	-	2.5	29.7	5.2
3/3	Lakeview Drive Right	U	C3:D		2	14	-	88	2005	167	52.7%	-	-	-	1.6	65.0	3.0
4/1	Lakeview Drive	U	-		-	-	-	1005	1965	1965	51.1%	-	-	-	0.5	1.9	3.3

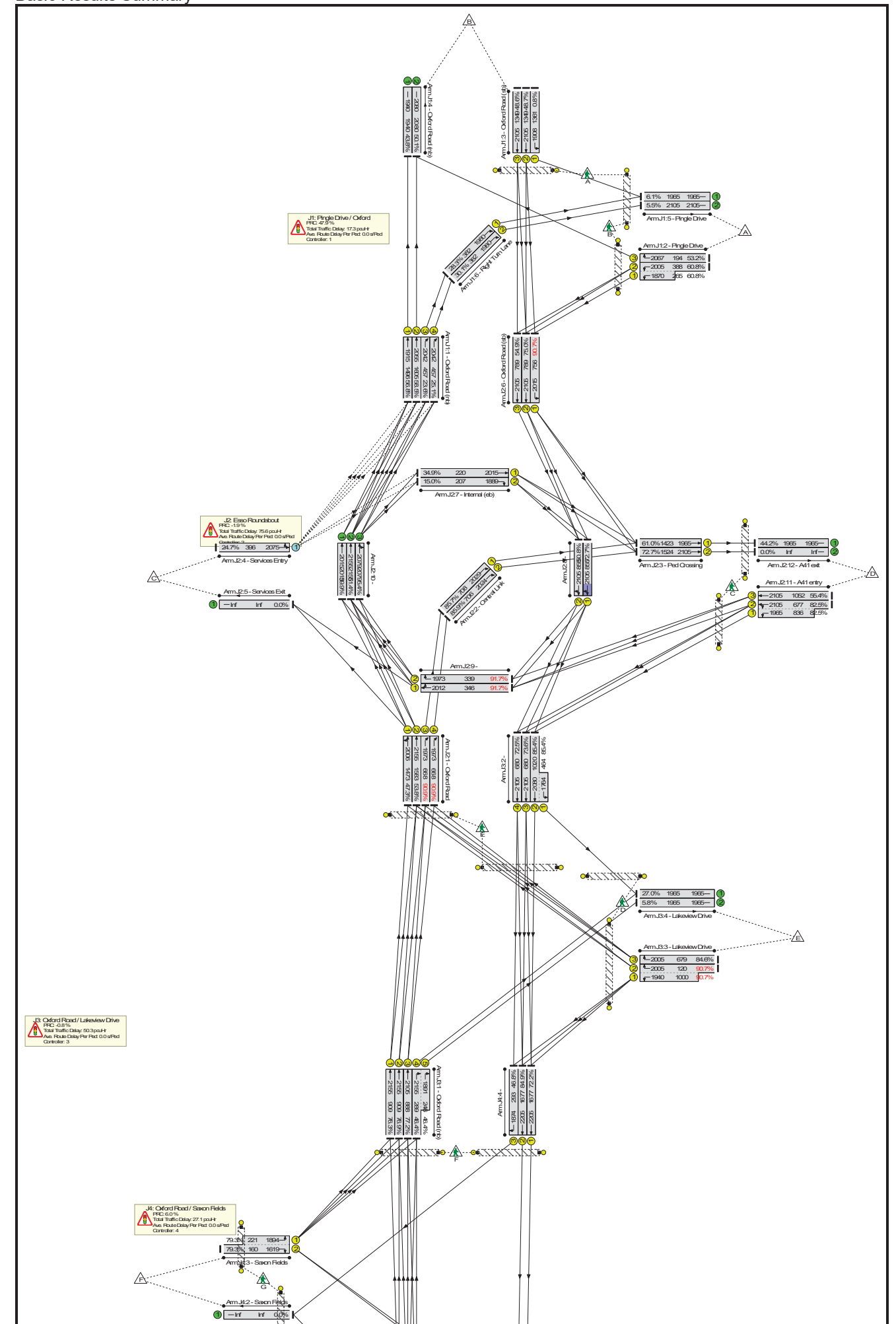
## Basic Results Summary

4/2	Lakeview Drive	U	-		-	-	-	363	1965	1965	18.5%	-	-	-	0.1	1.1	0.1
Ped Link: P1	Unnamed Ped Link	-	C3:G		1	16	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	C3:H		2	47	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	C3:I		2	47	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	C3:K		2	85	-	0	-	0	0.0%	-	-	-	-	-	-
<b>J4: Oxford Road / Saxon Fields</b>	-	-	-		-	-	-	-	-	-	<b>75.1%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16.0</b>	-	-
1/2+1/1	Oxford Road Ahead Left	U	C4:C	C4:J	2	113:135	22	794	2205:1709	1312+27	59.3 : 59.3%	-	-	-	3.4	15.3	15.0
1/3	Oxford Road Ahead	U	C4:C		2	113	-	690	2205	1321	52.2%	-	-	-	2.7	14.2	12.4
1/4	Oxford Road Ahead	U	C4:C		2	113	-	645	2105	1261	51.2%	-	-	-	2.5	14.2	11.5
3/2+3/1	Saxon Fields Left Right	U	C4:D	C4:I	2	22:41	19	298	1619:1894	202+194	75.1 : 75.1%	-	-	-	4.5	54.5	5.6
4/1	Ahead	U	C4:A		2	139	-	970	2205	1619	59.9%	-	-	-	1.3	4.9	13.6
4/2	Ahead	U	C4:A		2	139	-	1010	2205	1619	62.4%	-	-	-	1.1	3.9	16.3
4/3	Right	U	C4:B		2	21	-	37	1874	224	16.5%	-	-	-	0.5	44.9	1.1
Ped Link: P1	Unnamed Ped Link	-	C4:G		1	5	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	C4:H		2	21	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	C4:F		2	128	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	C4:E		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
			C1	PRC for Signalised Lanes (%)	71.7	Total Delay for Signalised Lanes (pcuHr):	7.96	Cycle Time (s):	192								
			C2	PRC for Signalised Lanes (%)	3.3	Total Delay for Signalised Lanes (pcuHr):	53.02	Cycle Time (s):	192								
			C3	PRC for Signalised Lanes (%)	-0.3	Total Delay for Signalised Lanes (pcuHr):	35.69	Cycle Time (s):	192								
			C4	PRC for Signalised Lanes (%)	19.8	Total Delay for Signalised Lanes (pcuHr):	16.05	Cycle Time (s):	192								
				PRC Over All Lanes (%)	-0.3	Total Delay Over All Lanes (pcuHr):	114.55										

Basic Results Summary

Scenario 10: '2026 BTM + Development PM' (FG4: '2026 PM BTM + Development', Plan 1: 'AM Peak')  
Network Layout Diagram

Basic Results Summary



Basic Results Summary

Basic Results Summary

**Network Results**

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	91.7%	72	26	0	170.3	-	-
J1: Pingle Drive / Oxford	-	-	-		-	-	-	-	-	-	60.8%	0	0	0	17.3	-	-
1/1	Oxford Road (nb) Ahead	U	C1:A		2	148	-	850	1915	1496	56.8%	-	-	-	1.5	6.2	7.8
1/2	Oxford Road (nb) Ahead	U	C1:A		2	148	-	940	2055	1605	58.5%	-	-	-	1.6	6.1	8.9
1/3	Oxford Road (nb) Right	U	C1:F		2	41	-	108	2042	457	23.6%	-	-	-	1.1	37.2	2.7
1/4	Oxford Road (nb) Right	U	C1:F		2	41	-	115	2042	457	25.1%	-	-	-	1.2	37.4	2.9
2/2+2/1	Pingle Drive Left	U	C1:E		2	47	-	397	2005:1870	388+265	60.8% : 60.8%	-	-	-	4.1	37.2	6.7
2/3	Pingle Drive Right	U	C1:D		2	16	-	103	2067	194	53.2%	-	-	-	1.8	61.2	3.3
3/1	Oxford Road (sb) Left	U	C1:C		2	135	-	11	1908	1361	0.8%	-	-	-	0.0	5.5	0.1
3/2	Oxford Road (sb) Ahead	U	C1:B		2	121	-	657	2105	1349	48.7%	-	-	-	2.1	11.7	10.5
3/3	Oxford Road (sb) Ahead	U	C1:B		2	121	-	656	2105	1349	48.6%	-	-	-	2.1	11.7	10.5
4/1	Oxford Road (nb)	U	-		-	-	-	850	1940	1940	43.8%	-	-	-	0.4	1.7	0.4
4/2	Oxford Road (nb)	U	-		-	-	-	1043	2080	2080	50.1%	-	-	-	0.5	1.7	0.5
5/1	Pingle Drive	U	-		-	-	-	119	1965	1965	6.1%	-	-	-	0.0	1.0	0.0
5/2	Pingle Drive	U	-		-	-	-	115	2105	2105	5.5%	-	-	-	0.0	0.9	0.0
6/1	Right Turn Lane Right	U	C1:G		2	35	-	108	1980	382	28.3%	-	-	-	0.4	14.7	0.5
6/2	Right Turn Lane Right	U	C1:G		2	35	-	115	1980	382	30.1%	-	-	-	0.4	13.8	0.5
Ped Link: P1	Unnamed Ped Link	-	C1:H		2	23	-	0	-	0	0.0%	-	-	-	-	-	-

Basic Results Summary

Ped Link: P2	Unnamed Ped Link	-	C1:I	2	121	-	0	-	45375	0.0%	-	-	-	0.0	0.0	0.0
Ped Link: P3	Unnamed Ped Link	-	C1:J	2	109	-	0	-	0	0.0%	-	-	-	-	-	-
<b>J2: Esso Roundabout</b>	-	-	-	-	-	-	-	-	-	<b>91.7%</b>	<b>72</b>	<b>26</b>	<b>0</b>	<b>75.6</b>	-	-
1/1	Oxford Road Left Ahead	U	C2:A	2	139	-	697	2006	1473	47.3%	-	-	-	0.9	4.6	5.1
1/2	Oxford Road Ahead	U	C2:A	2	139	-	851	2155	1583	53.8%	-	-	-	1.1	4.5	8.6
1/3	Oxford Road Right	U	C2:F	2	63	-	607	1973	668	90.9%	-	-	-	7.2	42.8	21.0
1/4	Oxford Road Right	U	C2:F	2	63	-	607	1973	668	90.9%	-	-	-	7.5	44.3	21.0
2/1	Central Link Right	U	C2:G	2	65	-	607	2029	708	85.7%	-	-	-	2.9	17.2	4.0
2/2	Central Link Right	U	C2:G	2	65	-	607	2024	706	85.9%	-	-	-	2.9	17.4	4.0
3/1	Ped Crossing Ahead	U	C2:J	2	137	-	868	1965	1423	61.0%	-	-	-	3.1	12.7	11.8
3/2	Ped Crossing Ahead	U	C2:J	2	137	-	1108	2105	1524	72.7%	-	-	-	3.7	12.0	17.2
4/1	Services Entry Left Ahead	O	-	-	-	-	98	2075	396	24.7%	72	26	0	0.2	7.0	0.8
6/1	Oxford Road (sb) Left	U	C2:B	2	70	-	685	2015	756	90.7%	-	-	-	8.4	44.3	21.7
6/2	Oxford Road (sb) Ahead	U	C2:B	2	70	-	592	2105	789	75.0%	-	-	-	4.6	28.2	14.5
6/3	Oxford Road (sb) Ahead	U	C2:B	2	70	-	433	2105	789	54.9%	-	-	-	2.7	22.6	7.3
7/1	Internal (eb) Ahead	U	C2:C	2	19	-	77	2015	220	34.9%	-	-	-	0.9	42.3	2.4
7/2	Internal (eb) Right	U	C2:C	2	19	-	31	1889	207	15.0%	-	-	-	0.4	48.1	0.9
8/1	Right Ahead	U	C2:E	2	76	-	622	2105	855	72.7%	-	-	-	2.2	12.7	3.6
8/2	Right Ahead	U	C2:E	2	76	-	434	2105	855	50.8%	-	-	-	1.1	9.2	1.7
9/1	Ahead Right	U	C2:H	2	31	-	317	2012	346	91.7%	-	-	-	6.6	74.7	12.8

Basic Results Summary

9/2	Right	U	C2:H	2	31	-	311	1973	339	91.7%	-	-	-	6.2	71.7	12.6
10/1	Ahead	U	-	-	-	-	803	2015	2015	39.9%	-	-	-	0.3	1.5	0.3
10/2	Ahead	U	-	-	-	-	1108	2155	2155	51.4%	-	-	-	0.5	1.7	6.0
10/3	Ahead Right	U	-	-	-	-	112	2079	2079	5.4%	-	-	-	0.0	0.9	0.0
11/2+11/1	A41 entry Ahead Left	U	C2:D	2	94	-	1249	2105:1965	677+836	82.5 : 82.5%	-	-	-	8.4	24.2	16.7
11/3	A41 entry Ahead	U	C2:D	2	94	-	583	2105	1052	55.4%	-	-	-	3.3	20.4	11.5
12/1	A41 exit	U	-	-	-	-	868	1965	1965	44.2%	-	-	-	0.4	1.6	0.4
Ped Link: P1	Unnamed Ped Link	-	C2:K	2	31	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	C2:I	2	70	-	0	-	0	0.0%	-	-	-	-	-	-
<b>J3: Oxford Road / Lakeview Drive</b>	-	-	-	-	-	-	-	-	-	<b>90.7%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50.3</b>	-	-
1/1	Oxford Road (nb) Ahead	U	C3:A	2	79	-	694	2155	909	76.3%	-	-	-	4.1	21.1	15.4
1/2	Oxford Road (nb) Ahead	U	C3:A	2	79	-	699	2155	909	76.9%	-	-	-	4.2	21.8	14.6
1/3	Oxford Road (nb) Ahead	U	C3:A	2	79	-	686	2105	888	77.2%	-	-	-	4.3	22.5	19.5
1/4+1/5	Oxford Road (nb) Right	U	C3:E	2	28	-	248	2155:1891	289+246	46.4 : 46.4%	-	-	-	2.3	32.7	3.8
2/2+2/1	Left Ahead	U	C3:C	2	134	-	1267	2080:1764	1020+464	85.4 : 85.4%	-	-	-	6.6	18.8	25.2
2/3	Ahead	U	C3:B	2	60	-	500	2105	680	73.6%	-	-	-	7.8	55.8	15.0
2/4	Ahead	U	C3:B	2	60	-	493	2105	680	72.5%	-	-	-	3.7	26.8	11.4
3/2+3/1	Lakeview Drive Right Left	U	C3:D	2	63:105	42	1016	2005:1940	120+1000	90.7 : 90.7%	-	-	-	9.9	35.1	29.3
3/3	Lakeview Drive Right	U	C3:D	2	63	-	574	2005	679	84.6%	-	-	-	7.3	45.9	17.8
4/1	Lakeview Drive	U	-	-	-	-	530	1965	1965	27.0%	-	-	-	0.2	1.3	0.7

<h1>Junctions 9</h1> <h2>ARCADY 9 - Roundabout Module</h2>
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2017
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Filename: Vendee Drive - A41 (With Consented Improvements) - 2017-08-23.j9  
 Path: N:\Projects\lmbic2 170211\Analysis\Modelling\Vendee Drive  
 Report generation date: 23/08/2017 14:12:49

Basic Results Summary

4/2	Lakeview Drive	U	-	-	-	-	-	114	1965	1965	5.8%	-	-	-	0.0	1.0	0.0
Ped Link: P1	Unnamed Ped Link	-	C3:G		1	6	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	C3:H		2	28	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	C3:I		2	28	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	C3:K		2	55	-	0	-	0	0.0%	-	-	-	-	-	-
<b>J4: Oxford Road / Saxon Fields</b>	-	-	-		-	-	-	-	-	-	<b>84.9%</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>27.1</b>	-	-
1/2+1/1	Oxford Road Ahead Left	U	C4:C	C4:J	2	111:130	19	891	2205:1709	1274+49	67.4 : 67.4%	-	-	-	4.4	17.8	20.0
1/3	Oxford Road Ahead	U	C4:C		2	111	-	665	2205	1298	51.2%	-	-	-	2.8	15.0	13.1
1/4	Oxford Road Ahead	U	C4:C		2	111	-	629	2105	1239	50.8%	-	-	-	2.6	15.1	12.4
3/2+3/1	Saxon Fields Left Right	U	C4:D	C4:I	2	17:36	19	302	1619:1894	160+221	79.3 : 79.3%	-	-	-	5.2	62.2	7.3
4/1	Ahead	U	C4:A		2	144	-	1210	2205	1677	72.2%	-	-	-	4.6	13.6	<b>27.6</b>
4/2	Ahead	U	C4:A		2	144	-	1424	2205	1677	84.9%	-	-	-	5.6	14.2	<b>32.3</b>
4/3	Right	U	C4:B		2	28	-	137	1874	293	46.8%	-	-	-	1.9	48.9	4.3
Ped Link: P1	Unnamed Ped Link	-	C4:G		1	12	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P2	Unnamed Ped Link	-	C4:H		2	16	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P3	Unnamed Ped Link	-	C4:F		2	133	-	0	-	0	0.0%	-	-	-	-	-	-
Ped Link: P4	Unnamed Ped Link	-	C4:E		1	4	-	0	-	0	0.0%	-	-	-	-	-	-

C1	PRC for Signalled Lanes (%)	47.9	Total Delay for Signalled Lanes (pcuHr):	16.39	Cycle Time (s):	192
C2	PRC for Signalled Lanes (%)	-1.9	Total Delay for Signalled Lanes (pcuHr):	74.14	Cycle Time (s):	192
C3	PRC for Signalled Lanes (%)	-0.8	Total Delay for Signalled Lanes (pcuHr):	50.09	Cycle Time (s):	192
C4	PRC for Signalled Lanes (%)	6.0	Total Delay for Signalled Lanes (pcuHr):	27.07	Cycle Time (s):	192
	PRC Over All Lanes (%)	-1.9	Total Delay Over All Lanes (pcuHr):	170.34		

- »2026 BTM, AM
- »2026 BTM, PM
- »2026 BTM + Development, AM
- »2026 BTM + Development, PM

Summary of junction performance

	AM							PM						
	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
<b>2026 BTM</b>														
<b>Arm 1</b>	0.4	4.58	0.27	A	4.84	A	28 % [Arm 4]	0.4	6.16	0.29	A	8.60	A	3 % [Arm 5]
<b>Arm 2</b>	2.8	4.53	0.74	A				5.3	7.17	0.84	A			
<b>Arm 3</b>	0.2	6.94	0.18	A				0.7	11.65	0.42	B			
<b>Arm 4</b>	2.7	5.07	0.73	A				5.6	10.15	<b>0.85</b>	B			
<b>Arm 5</b>	0.0	8.06	0.03	A				0.3	23.70	0.21	C			
<b>2026 BTM + Development</b>														
<b>Arm 1</b>	0.7	6.44	0.42	A	5.76	A	18 % [Arm 4]	0.4	6.35	0.31	A	20.86	C	-2 % [Arm 5]
<b>Arm 2</b>	3.0	4.74	0.75	A				<b>20.5</b>	24.98	<b>0.97</b>	C			
<b>Arm 3</b>	0.2	7.19	0.18	A				2.3	<b>40.67</b>	0.72	E			
<b>Arm 4</b>	4.0	6.63	0.80	A				7.7	13.91	<b>0.89</b>	B			
<b>Arm 5</b>	0.0	10.43	0.03	B				0.5	<b>44.45</b>	0.34	E			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Vendee Drove / A41 - Improved
Location	Bicester
Site number	
Date	20/07/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTION\klewis
Description	



**Units**

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

**Analysis Options**

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	Delay	0.85	36.00	20.00

**Demand Set Summary**

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2026 BTM	AM	ONE HOUR	07:45	09:15	15	✓
D6	2026 BTM	PM	ONE HOUR	16:45	18:15	15	✓
D7	2026 BTM + Development	AM	ONE HOUR	07:45	09:15	15	✓
D8	2026 BTM + Development	PM	ONE HOUR	16:45	18:15	15	✓

**Analysis Set Details**

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

# 2026 BTM, AM

**Data Errors and Warnings**

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

**Junction Network**

**Junctions**

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1,2,3,4,5	4.84	A

**Junction Network Options**

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	28	Arm 4

**Arms**

**Arms**

Arm	Name	Description
1	Vendee Drive	
2	A41	
3	Unnamed Road	
4	A41	
5	Park & Ride	

**Roundabout Geometry**

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.75	8.20	92.0	20.0	70.0	35.0	
2	7.50	12.00	38.0	36.0	70.0	18.0	
3	3.50	10.50	32.0	20.0	70.0	22.5	
4	7.00	12.00	25.0	35.0	70.0	25.0	
5	3.50	8.00	14.0	15.0	70.0	30.0	

**Slope / Intercept / Capacity**

**Roundabout Slope and Intercept used in model**

Arm	Final slope	Final intercept (PCU/hr)
1	0.590	2264
2	0.799	3468
3	0.617	2368
4	0.745	3161
5	0.502	1704

*The slope and intercept shown above include any corrections and adjustments.*



# 2026 BTM, PM

## Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

## Junction Network

### Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1,2,3,4,5	8.60	A

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	3	Arm 5

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2026 BTM	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		ONE HOUR	✓	220	100.000
2		ONE HOUR	✓	2465	100.000
3		ONE HOUR	✓	200	100.000
4		ONE HOUR	✓	1866	100.000
5		ONE HOUR	✓	37	100.000

## Origin-Destination Data

### Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	84	0	136	0
	2	182	549	0	1723	11
	3	3	82	0	114	1
	4	375	1443	40	0	8
	5	5	0	0	32	0

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	0	0	1	0
	2	1	0	0	3	0
	3	0	1	0	4	0
	4	0	4	0	0	0
	5	0	0	0	0	0

## Results

### Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.29	6.16	0.4	A	202	303
2	0.84	7.17	5.3	A	2262	3393
3	0.42	11.65	0.7	B	184	275
4	<b>0.85</b>	10.15	5.6	B	1712	2568
5	0.21	23.70	0.3	C	34	51

### Main Results for each time segment

#### 16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	166	41	1610	1280	0.129	165	424	0.0	0.1	3.227	A
2	1856	464	156	3272	0.567	1851	1619	0.0	1.3	2.524	A
3	151	38	1977	1094	0.138	150	30	0.0	0.2	3.811	A
4	1405	351	622	2616	0.537	1400	1505	0.0	1.2	2.950	A
5	28	7	2007	674	0.041	28	15	0.0	0.0	5.572	A

#### 17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	198	49	1926	1090	0.181	197	507	0.1	0.2	4.033	A
2	2216	554	187	3247	0.682	2213	1937	1.3	2.1	3.467	A
3	180	45	2363	857	0.210	179	36	0.2	0.3	5.310	A
4	1677	419	743	2528	0.664	1674	1800	1.2	1.9	4.200	A
5	33	8	2400	472	0.071	33	18	0.0	0.1	8.205	A

#### 17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	242	61	2348	835	0.290	241	618	0.2	0.4	6.053	A
2	2714	679	228	3215	0.844	2702	2362	2.1	5.2	6.857	A
3	220	55	2886	537	0.410	219	44	0.3	0.7	11.259	B
4	2055	514	907	2409	<b>0.853</b>	2041	2197	1.9	5.4	9.431	A
5	41	10	2926	201	0.202	40	22	0.1	0.2	22.239	C

#### 17:30 - 17:45

Arm	Total Demand	Junction Arrivals	Circulating flow	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay	LOS

	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)	(s)	
1	242	61	2362	827	0.293	242	622	0.4	0.4	6.155	A
2	2714	679	229	3214	0.844	2714	2375	5.2	5.3	7.171	A
3	220	55	2898	529	0.416	220	44	0.7	0.7	11.650	B
4	2055	514	911	2406	0.854	2054	2207	5.4	5.6	10.148	B
5	41	10	2943	192	0.212	41	22	0.2	0.3	23.698	C

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	198	49	1945	1078	0.183	199	512	0.4	0.2	4.096	A
2	2216	554	188	3246	0.683	2228	1955	5.3	2.2	3.579	A
3	180	45	2381	846	0.212	182	36	0.7	0.3	5.429	A
4	1677	419	749	2524	0.665	1692	1813	5.6	2.0	4.399	A
5	33	8	2423	460	0.072	34	18	0.3	0.1	8.468	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	166	41	1619	1274	0.130	166	426	0.2	0.2	3.247	A
2	1856	464	157	3271	0.567	1859	1628	2.2	1.3	2.558	A
3	151	38	1986	1088	0.138	151	30	0.3	0.2	3.842	A
4	1405	351	625	2614	0.537	1408	1512	2.0	1.2	2.995	A
5	28	7	2018	668	0.042	28	15	0.1	0.0	5.626	A

# 2026 BTM + Development, AM

## Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

## Junction Network

### Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1,2,3,4,5	5.76	A

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	18	Arm 4

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2026 BTM + Development	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		ONE HOUR	✓	369	100.000
2		ONE HOUR	✓	2076	100.000
3		ONE HOUR	✓	100	100.000
4		ONE HOUR	✓	1982	100.000
5		ONE HOUR	✓	11	100.000

## Origin-Destination Data

### Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	260	2	107	0
	2	187	187	0	1682	20
	3	0	87	0	13	0
	4	261	1496	167	3	55
	5	1	0	0	10	0

## Vehicle Mix

### Heavy Vehicle Percentages

From	To				
	1	2	3	4	5
1	0	0	0	4	0
2	6	0	0	6	0
3	0	34	0	8	0
4	2	0	1	0	0
5	0	0	0	0	0

## Results

### Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.42	6.44	0.7	A	339	508
2	0.75	4.74	3.0	A	1905	2857
3	0.18	7.19	0.2	A	92	138
4	0.80	6.63	4.0	A	1819	2728
5	0.03	10.43	0.0	B	10	15

### Main Results for each time segment

#### 07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	278	69	1464	1370	0.203	277	337	0.0	0.3	3.288	A
2	1563	391	217	3123	0.501	1559	1524	0.0	1.0	2.297	A
3	75	19	1649	993	0.076	75	127	0.0	0.1	3.920	A
4	1492	373	361	2860	0.522	1488	1363	0.0	1.1	2.615	A
5	8	2	1793	786	0.011	8	56	0.0	0.0	4.629	A

#### 08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	332	83	1751	1200	0.276	331	403	0.3	0.4	4.140	A
2	1866	467	259	3090	0.604	1864	1822	1.0	1.5	2.932	A
3	90	22	1972	832	0.108	90	152	0.1	0.1	4.845	A
4	1782	445	432	2803	0.636	1779	1630	1.1	1.7	3.508	A
5	10	2	2144	606	0.016	10	67	0.0	0.0	6.039	A

#### 08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	406	102	2139	970	0.419	405	493	0.4	0.7	6.348	A
2	2286	571	317	3045	0.751	2280	2227	1.5	2.9	4.669	A
3	110	28	2412	614	0.179	110	185	0.1	0.2	7.138	A
4	2182	546	528	2725	0.801	2174	1993	1.7	3.9	6.425	A
5	12	3	2619	362	0.033	12	82	0.0	0.0	10.279	B

#### 08:30 - 08:45

Arm	Total Demand	Junction Arrivals	Circulating flow	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay	LOS

	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)	(s)	
1	406	102	2147	966	0.421	406	494	0.7	0.7	6.435	A
2	2286	571	318	3044	0.751	2286	2235	2.9	3.0	4.744	A
3	110	28	2418	611	0.180	110	186	0.2	0.2	7.189	A
4	2182	546	530	2724	0.801	2182	1998	3.9	4.0	6.628	A
5	12	3	2629	357	0.034	12	83	0.0	0.0	10.428	B

#### 08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	332	83	1761	1194	0.278	333	405	0.7	0.4	4.188	A
2	1866	467	261	3088	0.604	1872	1833	3.0	1.5	2.972	A
3	90	22	1980	828	0.109	90	153	0.2	0.1	4.880	A
4	1782	445	434	2801	0.636	1791	1637	4.0	1.8	3.591	A
5	10	2	2157	599	0.017	10	68	0.0	0.0	6.110	A

#### 09:00 - 09:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	278	69	1471	1366	0.203	278	339	0.4	0.3	3.309	A
2	1563	391	218	3122	0.501	1565	1531	1.5	1.0	2.317	A
3	75	19	1656	990	0.076	75	127	0.1	0.1	3.939	A
4	1492	373	363	2859	0.522	1495	1368	1.8	1.1	2.646	A
5	8	2	1801	782	0.011	8	57	0.0	0.0	4.655	A

# 2026 BTM + Development, PM

## Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm 1 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 2 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm 3 - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

## Junction Network

### Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout	1,2,3,4,5	20.86	C

### Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	-2	Arm 5

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2026 BTM + Development	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		ONE HOUR	✓	228	100.000
2		ONE HOUR	✓	2839	100.000
3		ONE HOUR	✓	200	100.000
4		ONE HOUR	✓	1884	100.000
5		ONE HOUR	✓	37	100.000

## Origin-Destination Data

### Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	92	0	136	0
	2	297	549	11	1982	0
	3	3	82	0	114	1
	4	375	1461	40	0	8
	5	5	0	0	32	0

## Vehicle Mix

### Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	0	0	1	0
	2	1	0	0	2	0
	3	0	1	0	4	0
	4	0	4	0	0	0
	5	0	0	0	0	0

## Results

### Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	0.31	6.35	0.4	A	209	314
2	0.97	24.98	20.5	C	2605	3908
3	0.72	40.67	2.3	E	184	275
4	0.89	13.91	7.7	B	1729	2593
5	0.34	44.45	0.5	E	34	51

### Main Results for each time segment

#### 16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	172	43	1623	1272	0.135	171	510	0.0	0.2	3.267	A
2	2137	534	156	3293	0.649	2130	1638	0.0	1.8	3.077	A
3	151	38	2248	936	0.161	150	38	0.0	0.2	4.574	A
4	1418	355	699	2559	0.554	1413	1698	0.0	1.2	3.129	A
5	28	7	2106	623	0.045	28	7	0.0	0.0	6.045	A

#### 17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	205	51	1941	1081	0.190	205	610	0.2	0.2	4.108	A
2	2552	638	187	3269	0.781	2546	1959	1.8	3.5	4.932	A
3	180	45	2686	669	0.269	179	46	0.2	0.4	7.341	A
4	1694	423	836	2460	0.688	1690	2030	1.2	2.2	4.650	A
5	33	8	2517	412	0.081	33	8	0.0	0.1	9.506	A

#### 17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	251	63	2353	832	0.302	250	739	0.2	0.4	6.177	A
2	3126	781	227	3237	0.966	3071	2376	3.5	17.2	17.744	C
3	220	55	3243	330	0.668	214	56	0.4	1.8	29.855	D
4	2074	519	1007	2336	0.888	2055	2450	2.2	7.1	12.049	B
5	41	10	3052	137	0.297	39	10	0.1	0.4	36.506	E

#### 17:30 - 17:45

Arm	Total Demand	Junction Arrivals	Circulating flow	Capacity	RFC	Throughput	Throughput (exit side)	Start queue	End queue	Delay	LOS

	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)		(Veh/hr)	(Veh/hr)	(Veh)	(Veh)	(s)	
1	251	63	2377	818	0.307	251	747	0.4	0.4	6.350	A
2	3126	781	229	3236	0.966	3113	2399	17.2	20.5	24.981	C
3	220	55	3285	304	0.725	218	56	1.8	2.3	40.667	E
4	2074	519	1021	2326	0.892	2072	2482	7.1	7.7	13.911	B
5	41	10	3083	121	0.337	40	10	0.4	0.5	44.447	E

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	205	51	1980	1057	0.194	206	623	0.4	0.2	4.232	A
2	2552	638	189	3267	0.781	2619	1996	20.5	3.7	6.131	A
3	180	45	2762	623	0.289	188	47	2.3	0.4	8.417	A
4	1694	423	861	2442	0.694	1715	2088	7.7	2.3	5.096	A
5	33	8	2568	386	0.086	35	8	0.5	0.1	10.299	B

18:00 - 18:15

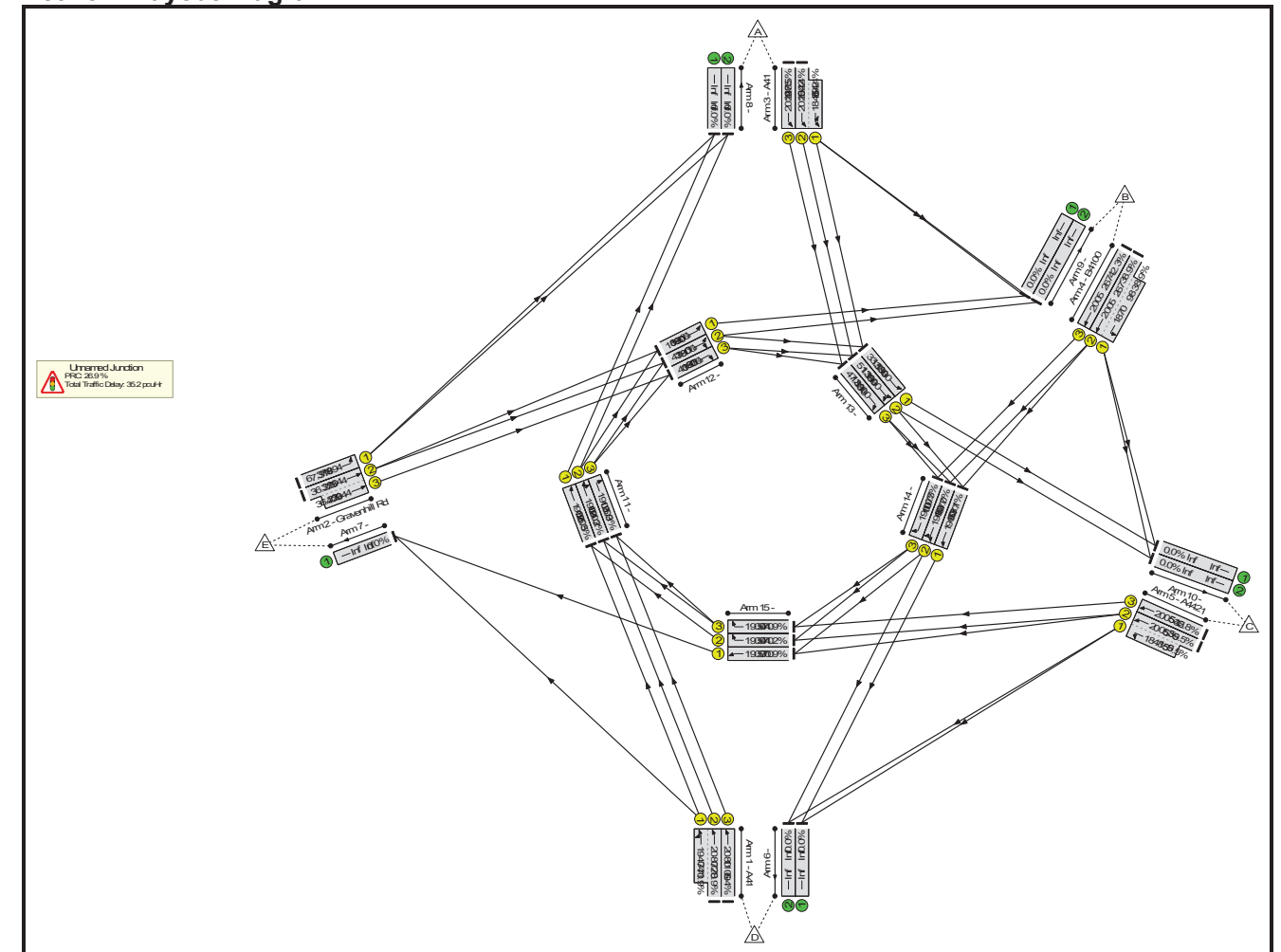
Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
1	172	43	1634	1265	0.136	172	514	0.2	0.2	3.295	A
2	2137	534	157	3292	0.649	2145	1649	3.7	1.9	3.155	A
3	151	38	2263	927	0.162	151	39	0.4	0.2	4.647	A
4	1418	355	704	2556	0.555	1423	1710	2.3	1.3	3.187	A
5	28	7	2120	616	0.045	28	7	0.1	0.0	6.128	A

Basic Results Summary  
Basic Results Summary

User and Project Details

Project:	Bicester Office Park
Title:	Rodney House Roundabout
Location:	Bicester
File name:	Rodney House - Consented Junction.lsg3x
Author:	
Company:	Motion
Address:	
Notes:	

Scenario 1: '2026 AM No Development' (FG1: '2026 AM No Dev', Plan 1: 'Network Control Plan 1')  
Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	-	-	-	-	-	70.9%	0	0	0	35.2	-	-
Unnamed Junction	-	-	-	-	-	-	-	-	-	-	70.9%	0	0	0	35.2	-	-
1/2+1/1	A41 Left Ahead	U	J		1	31	-	1041	2080:1940	728+741	70.9 : 70.9%	-	-	-	3.8	13.0	6.8
1/3	A41 Ahead	U	J		1	31	-	71	2080	1109	6.4%	-	-	-	0.2	8.5	0.6
2/1	Gravenhill Rd Left	U	M		1	11	-	255	1894	379	67.3%	-	-	-	2.6	36.5	4.9
2/2+2/3	Gravenhill Rd Ahead	U	M		1	11	-	283	2044:2044	373+409	36.2 : 36.2%	-	-	-	1.9	24.3	2.4
3/2+3/1	A41 U-Turn Ahead	U	A		1	37	-	1041	2029:1846	1022+892	54.4 : 54.4%	-	-	-	2.2	7.6	5.2
3/3	A41 Ahead	U	A		1	37	-	610	2029	1285	47.5%	-	-	-	1.4	8.4	5.7
4/2+4/1	B4100 Left Ahead	U	D		1	7	-	142	2005:1870	267+98	38.9 : 38.9%	-	-	-	1.2	31.6	1.9
4/3	B4100 Ahead	U	D		1	7	-	113	2005	267	42.3%	-	-	-	1.1	35.5	2.1
5/2+5/1	A4421 Left Ahead	U	G		1	15	-	410	2005:1848	535+155	59.5 : 59.5%	-	-	-	2.9	25.1	5.3
5/3	A4421 Ahead	U	G		1	15	-	229	2005	535	42.8%	-	-	-	1.5	24.1	3.5
11/1	Ahead	U	N		1	37	-	680	1900	1203	56.5%	-	-	-	1.4	7.2	6.5
11/2	Ahead Right	U	N		1	37	-	772	1900	1203	64.2%	-	-	-	1.8	8.3	8.0
11/3	Right	U	N		1	37	-	71	1900	1203	5.9%	-	-	-	0.1	5.5	0.7
12/1	Ahead	U	B		1	11	-	64	1900	380	16.8%	-	-	-	0.4	22.2	0.9
12/2	Ahead Right	U	B		1	11	-	179	1900	380	47.1%	-	-	-	1.0	20.9	3.2
12/3	Right	U	B		1	11	-	152	1900	380	40.0%	-	-	-	0.8	20.1	2.8
13/1	Ahead	U	E		1	41	-	446	1900	1330	33.5%	-	-	-	0.5	4.1	3.3
13/2	Ahead Right	U	E		1	41	-	682	1900	1330	51.3%	-	-	-	1.1	5.8	6.6
13/3	Right	U	E		1	41	-	636	1900	1330	47.8%	-	-	-	1.0	5.7	7.1

Basic Results Summary

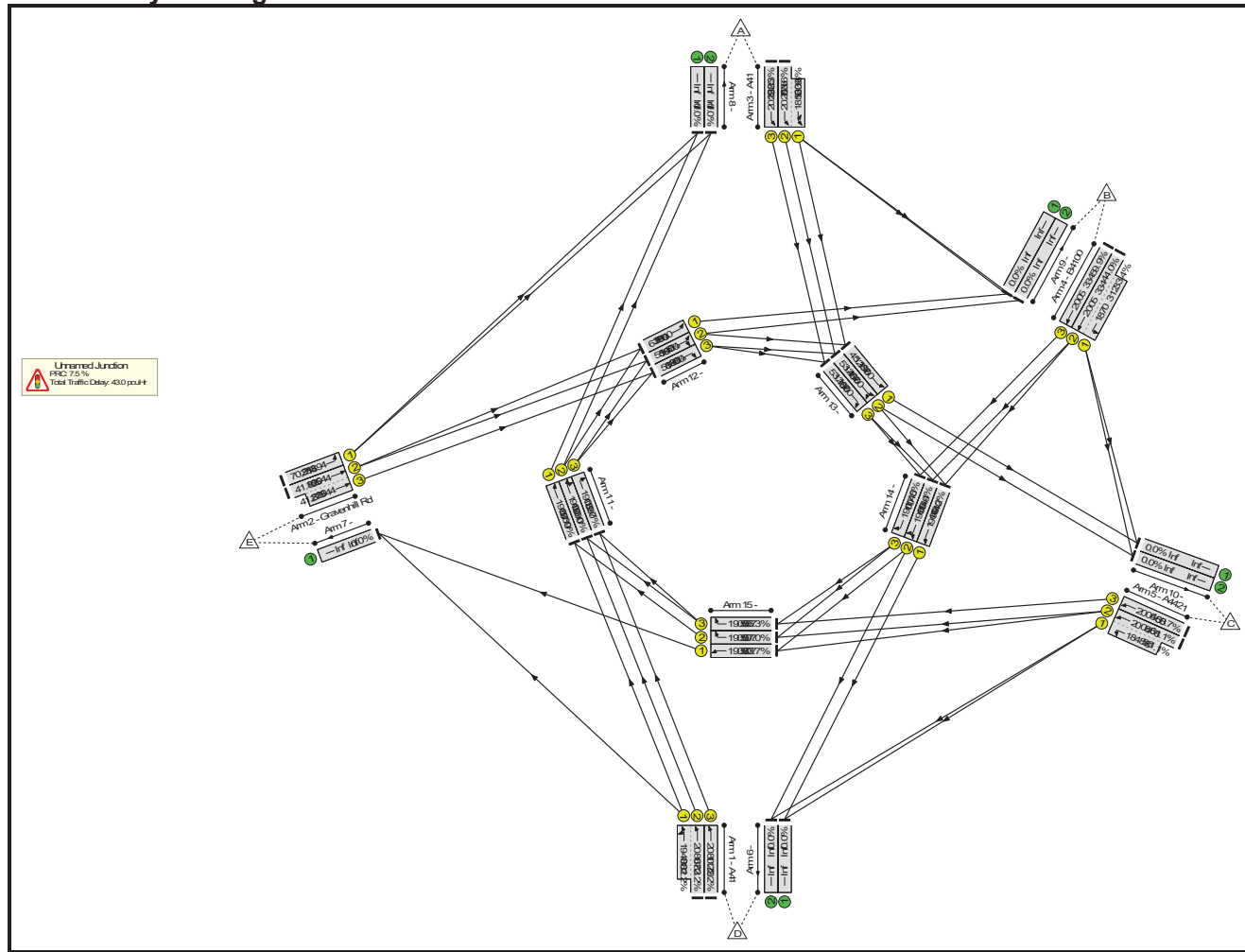
14/1	Ahead	U	H		1	33	-	679	1900	1077	63.1%	-	-	-	1.5	8.0	4.0
14/2	Ahead Right	U	H		1	33	-	678	1900	1077	63.0%	-	-	-	1.3	6.9	2.6
14/3	Right	U	H		1	33	-	113	1900	1077	10.5%	-	-	-	0.2	7.8	1.9
15/1	Ahead	U	K		1	17	-	404	1900	570	70.9%	-	-	-	3.1	27.3	6.5
15/2	Right	U	K		1	17	-	252	1900	570	44.2%	-	-	-	0.9	13.2	3.2
15/3	Right	U	K		1	17	-	256	1900	570	44.9%	-	-	-	1.3	17.7	4.4
									C1 Stream: 1 PRC for Signalised Lanes (%):	65.5	Total Delay for Signalised Lanes (pcuHr):	5.91	Cycle Time (s):	60			
									C1 Stream: 2 PRC for Signalised Lanes (%):	75.5	Total Delay for Signalised Lanes (pcuHr):	4.97	Cycle Time (s):	60			
									C1 Stream: 3 PRC for Signalised Lanes (%):	42.7	Total Delay for Signalised Lanes (pcuHr):	7.44	Cycle Time (s):	60			
									C1 Stream: 4 PRC for Signalised Lanes (%):	26.9	Total Delay for Signalised Lanes (pcuHr):	9.18	Cycle Time (s):	60			
									C1 Stream: 5 PRC for Signalised Lanes (%):	33.7	Total Delay for Signalised Lanes (pcuHr):	7.73	Cycle Time (s):	60			
									PRC Over All Lanes (%):	26.9	Total Delay Over All Lanes (pcuHr):	35.22					



Basic Results Summary

Scenario 2: '2026 PM No Development' (FG2: '2026 PM No Dev', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	-	-	-	-	-	83.7%	0	0	0	43.0	-	-
Unnamed Junction	-	-	-	-	-	-	-	-	-	-	83.7%	0	0	0	43.0	-	-
1/2+1/1	A41 Left Ahead	U	J		1	33	-	1211	2080:1940	673+801	82.2 : 82.2%	-	-	-	5.0	14.9	9.9
1/3	A41 Ahead	U	J		1	33	-	262	2080	1179	22.2%	-	-	-	0.6	8.4	2.3
2/1	Gravenhill Rd Left	U	M		1	7	-	179	1894	253	70.9%	-	-	-	2.4	48.6	4.0
2/2+2/3	Gravenhill Rd Ahead	U	M		1	7	-	183	2044:2044	165+273	41.8 : 41.8%	-	-	-	1.6	30.7	2.1
3/2+3/1	A41 U-Turn Ahead	U	A		1	37	-	1104	2029:1852	726+1009	63.6 : 63.6%	-	-	-	2.6	8.6	6.8
3/3	A41 Ahead	U	A		1	37	-	672	2029	1285	52.3%	-	-	-	1.7	9.0	6.5
4/2+4/1	B4100 Left Ahead	U	D		1	9	-	251	2005:1870	334+312	44.0 : 33.4%	-	-	-	1.9	26.9	2.5
4/3	B4100 Ahead	U	D		1	9	-	200	2005	334	59.9%	-	-	-	2.0	36.4	3.8
5/2+5/1	A4421 Left Ahead	U	G		1	13	-	320	2005:1848	468+56	61.1 : 61.1%	-	-	-	2.6	29.1	5.0
5/3	A4421 Ahead	U	G		1	13	-	237	2005	468	50.7%	-	-	-	1.8	27.8	3.9
11/1	Ahead	U	N		1	41	-	770	1900	1330	57.9%	-	-	-	1.2	5.6	3.5
11/2	Ahead Right	U	N		1	41	-	838	1900	1330	63.0%	-	-	-	1.4	6.1	4.7
11/3	Right	U	N		1	41	-	262	1900	1330	19.7%	-	-	-	0.4	4.8	1.5
12/1	Ahead	U	B		1	11	-	26	1900	380	6.8%	-	-	-	0.1	17.2	0.4
12/2	Ahead Right	U	B		1	11	-	211	1900	380	55.5%	-	-	-	1.4	24.1	3.3
12/3	Right	U	B		1	11	-	215	1900	380	56.6%	-	-	-	1.2	20.7	3.7
13/1	Ahead	U	E		1	39	-	571	1900	1267	45.1%	-	-	-	0.8	5.0	2.6
13/2	Ahead Right	U	E		1	39	-	676	1900	1267	53.4%	-	-	-	1.8	9.4	8.6
13/3	Right	U	E		1	39	-	673	1900	1267	53.1%	-	-	-	0.6	3.4	4.8

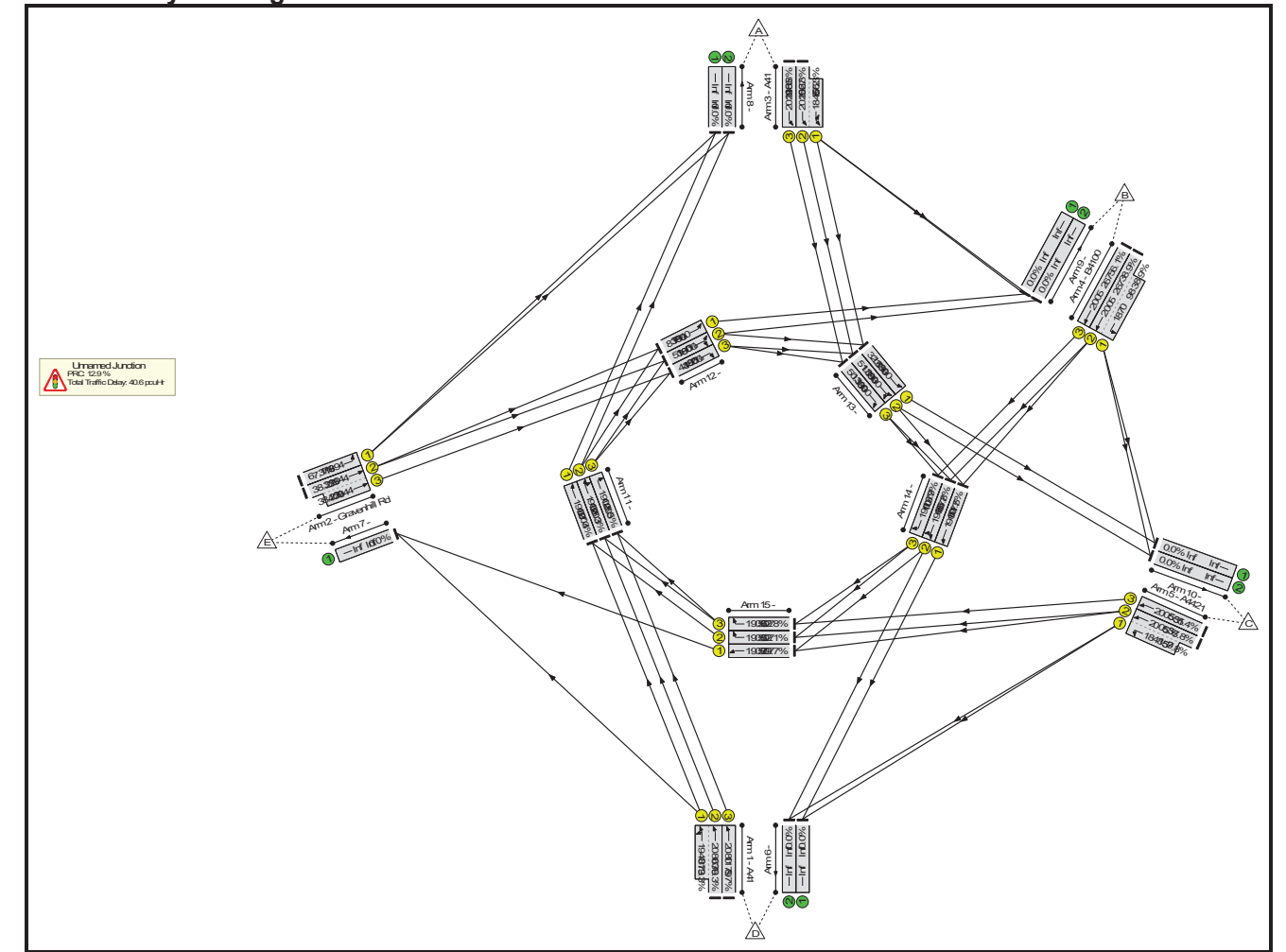
Basic Results Summary

14/1	Ahead	U	H		1	35	-	561	1900	1140	49.2%	-	-	-	0.9	5.7	2.8
14/2	Ahead Right	U	H		1	35	-	746	1900	1140	65.4%	-	-	-	1.7	8.2	9.6
14/3	Right	U	H		1	35	-	200	1900	1140	17.5%	-	-	-	0.9	16.9	3.4
15/1	Ahead	U	K		1	15	-	424	1900	507	83.7%	-	-	-	4.8	40.7	9.3
15/2	Right	U	K		1	15	-	289	1900	507	57.0%	-	-	-	2.3	28.7	3.8
15/3	Right	U	K		1	15	-	285	1900	507	56.3%	-	-	-	1.2	15.4	1.7
				C1	Stream: 1 PRC for Signalised Lanes (%)	41.4	Total Delay for Signalised Lanes (pcuHr):		7.09	Cycle Time (s):		60					
				C1	Stream: 2 PRC for Signalised Lanes (%)	50.4	Total Delay for Signalised Lanes (pcuHr):		7.11	Cycle Time (s):		60					
				C1	Stream: 3 PRC for Signalised Lanes (%)	37.5	Total Delay for Signalised Lanes (pcuHr):		7.93	Cycle Time (s):		60					
				C1	Stream: 4 PRC for Signalised Lanes (%)	7.5	Total Delay for Signalised Lanes (pcuHr):		13.94	Cycle Time (s):		60					
				C1	Stream: 5 PRC for Signalised Lanes (%)	27.0	Total Delay for Signalised Lanes (pcuHr):		6.95	Cycle Time (s):		60					
				PRC Over All Lanes (%)		7.5	Total Delay Over All Lanes (pcuHr):		43.01								

Basic Results Summary

Scenario 3: '2026 AM With Development' (FG3: '2026 AM With Dev', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	-	-	-	-	-	79.7%	0	0	0	40.6	-	-
Unnamed Junction	-	-	-	-	-	-	-	-	-	-	79.7%	0	0	0	40.6	-	-
1/2+1/1	A41 Left Ahead	U	J		1	33	-	1148	2080:1940	636+813	79.3 : 79.3%	-	-	-	4.4	13.9	8.7
1/3	A41 Ahead	U	J		1	33	-	102	2080	1179	8.7%	-	-	-	0.2	7.6	0.8
2/1	Gravenhill Rd Left	U	M		1	11	-	254	1894	379	67.1%	-	-	-	2.6	36.4	4.9
2/2+2/3	Gravenhill Rd Ahead	U	M		1	11	-	283	2044:2044	333+409	38.2 : 38.2%	-	-	-	1.9	24.6	2.5
3/2+3/1	A41 U-Turn Ahead	U	A		1	37	-	1069	2029:1846	1027+872	56.3 : 56.3%	-	-	-	2.3	7.7	5.5
3/3	A41 Ahead	U	A		1	37	-	601	2029	1285	46.8%	-	-	-	1.4	8.4	5.6
4/2+4/1	B4100 Left Ahead	U	D		1	7	-	142	2005:1870	267+98	38.9 : 38.9%	-	-	-	1.2	31.6	1.9
4/3	B4100 Ahead	U	D		1	7	-	150	2005	267	56.1%	-	-	-	1.6	39.5	3.0
5/2+5/1	A4421 Left Ahead	U	G		1	15	-	401	2005:1848	535+159	57.8 : 57.8%	-	-	-	2.8	24.7	5.1
5/3	A4421 Ahead	U	G		1	15	-	275	2005	535	51.4%	-	-	-	2.0	25.6	4.3
11/1	Ahead	U	N		1	37	-	811	1900	1203	67.4%	-	-	-	2.2	9.6	6.5
11/2	Ahead Right	U	N		1	37	-	822	1900	1203	68.3%	-	-	-	2.4	10.4	12.3
11/3	Right	U	N		1	37	-	102	1900	1203	8.5%	-	-	-	0.1	3.8	0.2
12/1	Ahead	U	B		1	11	-	33	1900	380	8.7%	-	-	-	0.2	17.2	0.3
12/2	Ahead Right	U	B		1	11	-	194	1900	380	51.1%	-	-	-	1.4	25.9	3.5
12/3	Right	U	B		1	11	-	168	1900	380	44.2%	-	-	-	0.6	12.1	2.7
13/1	Ahead	U	E		1	41	-	433	1900	1330	32.6%	-	-	-	0.6	5.3	2.4
13/2	Ahead Right	U	E		1	41	-	678	1900	1330	51.0%	-	-	-	0.9	4.8	3.3
13/3	Right	U	E		1	41	-	669	1900	1330	50.3%	-	-	-	0.8	4.1	3.7

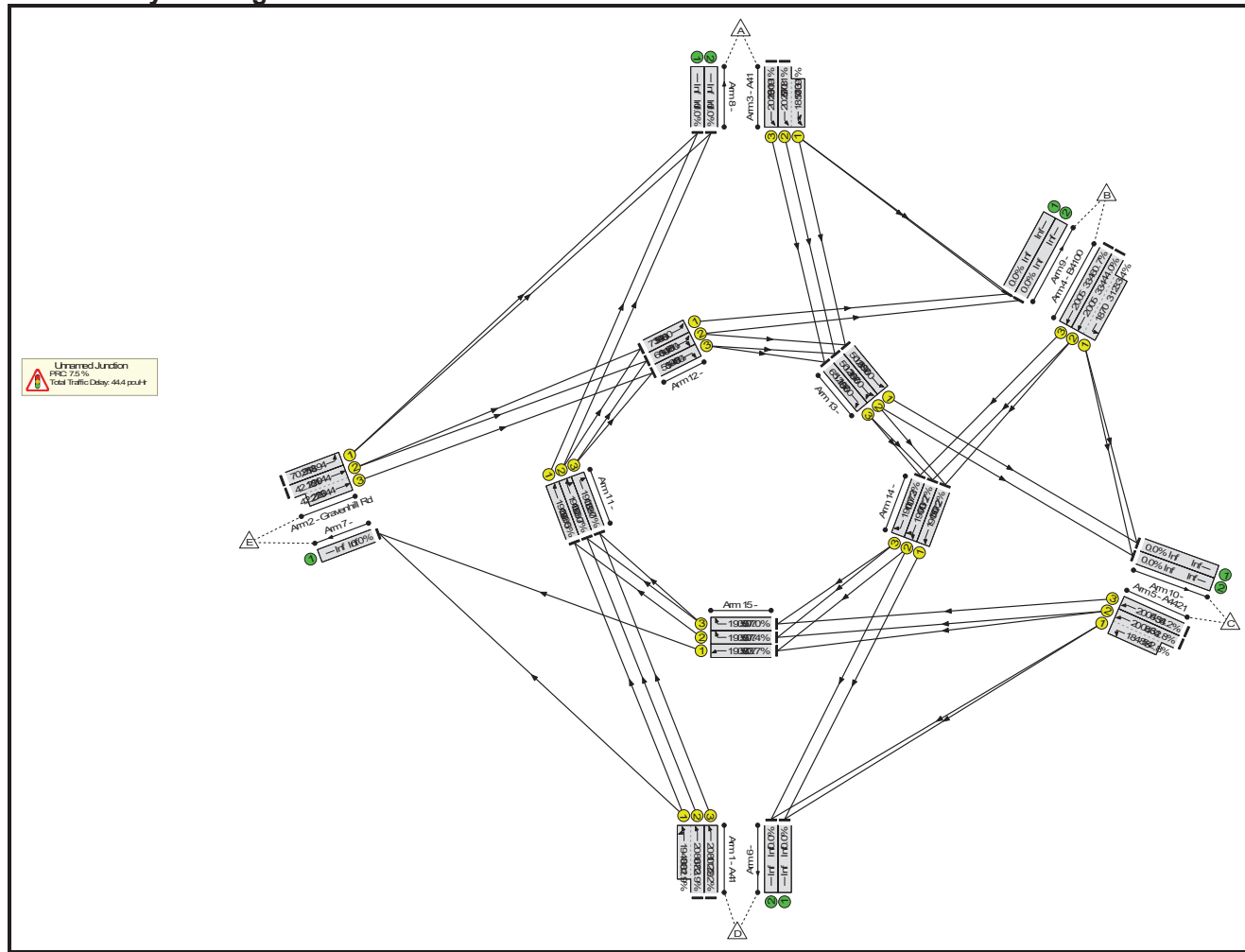
Basic Results Summary

14/1	Ahead	U	H		1	33	-	662	1900	1077	61.5%	-	-	-	1.6	8.9	4.0
14/2	Ahead Right	U	H		1	33	-	708	1900	1077	65.8%	-	-	-	1.8	9.0	4.8
14/3	Right	U	H		1	33	-	150	1900	1077	13.9%	-	-	-	0.4	8.9	2.6
15/1	Ahead	U	K		1	15	-	404	1900	507	79.7%	-	-	-	3.9	35.1	7.7
15/2	Right	U	K		1	15	-	264	1900	507	52.1%	-	-	-	1.8	23.9	2.6
15/3	Right	U	K		1	15	-	318	1900	507	62.8%	-	-	-	1.6	17.8	2.5
		C1		Stream: 1 PRC for Signalised Lanes (%)		59.9		Total Delay for Signalised Lanes (pcuHr):		5.81		Cycle Time (s):		60			
		C1		Stream: 2 PRC for Signalised Lanes (%)		60.4		Total Delay for Signalised Lanes (pcuHr):		5.20		Cycle Time (s):		60			
		C1		Stream: 3 PRC for Signalised Lanes (%)		36.9		Total Delay for Signalised Lanes (pcuHr):		8.49		Cycle Time (s):		60			
		C1		Stream: 4 PRC for Signalised Lanes (%)		12.9		Total Delay for Signalised Lanes (pcuHr):		11.92		Cycle Time (s):		60			
		C1		Stream: 5 PRC for Signalised Lanes (%)		31.8		Total Delay for Signalised Lanes (pcuHr):		9.17		Cycle Time (s):		60			
				PRC Over All Lanes (%)		12.9		Total Delay Over All Lanes (pcuHr):		40.58							

Basic Results Summary

Scenario 4: '2026 PM With Development' (FG4: '2026 PM With Dev', Plan 1: 'Network Control Plan 1')

Network Layout Diagram



Basic Results Summary

Network Results

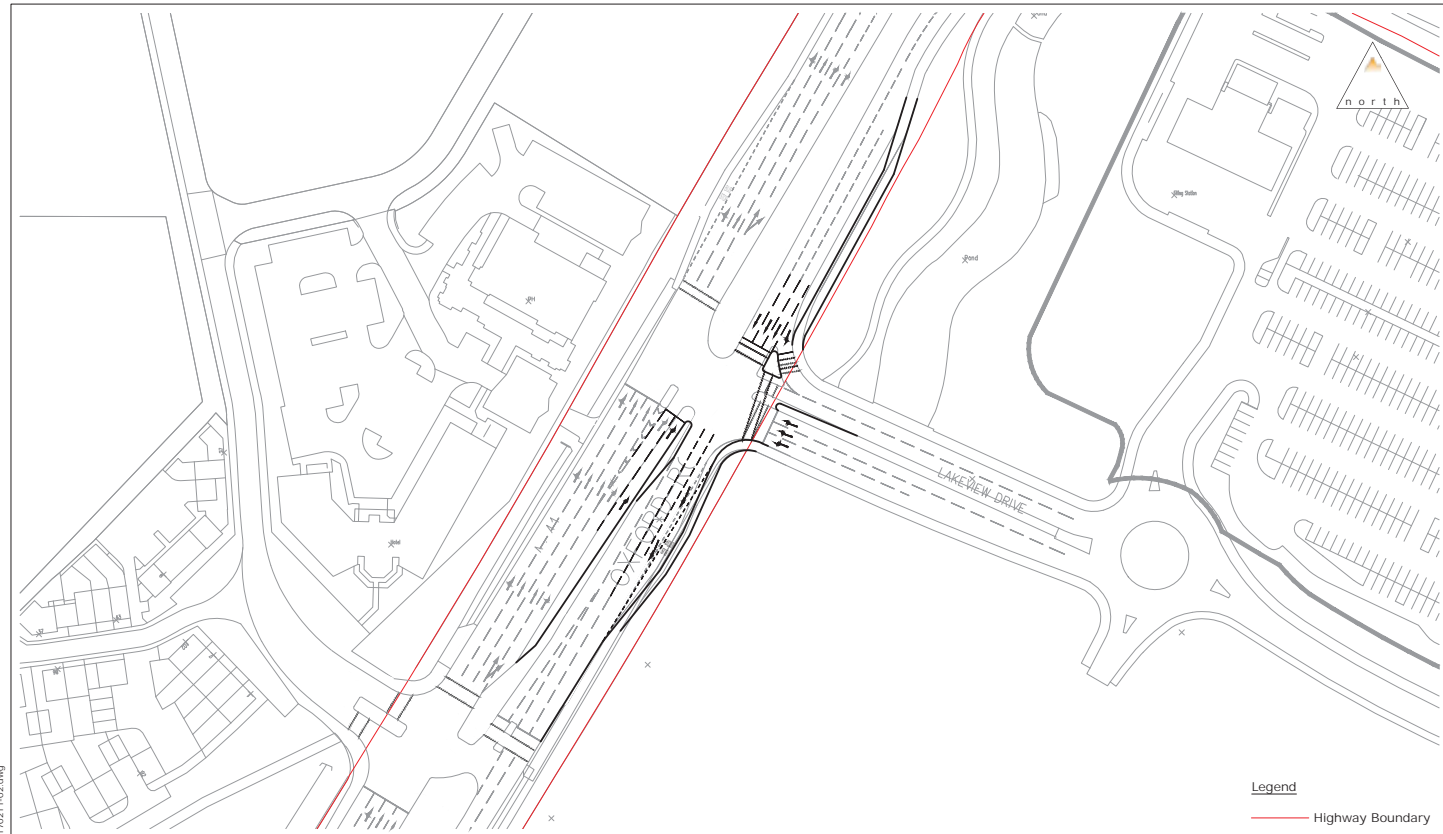
Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	-	-	-	-	-	83.7%	0	0	0	44.4	-	-
Unnamed Junction	-	-	-	-	-	-	-	-	-	-	83.7%	0	0	0	44.4	-	-
1/2+1/1	A41 Left Ahead	U	J		1	33	-	1222	2080:1940	673+801	82.9 : 82.9%	-	-	-	5.2	15.2	10.4
1/3	A41 Ahead	U	J		1	33	-	262	2080	1179	22.2%	-	-	-	0.6	8.4	2.3
2/1	Gravenhill Rd Left	U	M		1	7	-	179	1894	253	70.9%	-	-	-	2.4	48.6	4.0
2/2+2/3	Gravenhill Rd Ahead	U	M		1	7	-	183	2044:2044	161+273	42.2 : 42.2%	-	-	-	1.6	30.8	2.1
3/2+3/1	A41 U-Turn Ahead	U	A		1	38	-	1203	2029:1851	678+1039	70.1 : 70.1%	-	-	-	3.0	9.1	8.0
3/3	A41 Ahead	U	A		1	38	-	793	2029	1319	60.1%	-	-	-	2.1	9.4	8.2
4/2+4/1	B4100 Left Ahead	U	D		1	9	-	251	2005:1870	334+312	44.0 : 33.4%	-	-	-	1.9	26.9	2.5
4/3	B4100 Ahead	U	D		1	9	-	203	2005	334	60.7%	-	-	-	2.1	36.8	3.9
5/2+5/1	A4421 Left Ahead	U	G		1	12	-	307	2005:1848	434+54	62.8 : 62.8%	-	-	-	2.6	30.9	4.9
5/3	A4421 Ahead	U	G		1	12	-	253	2005	434	58.2%	-	-	-	2.2	30.9	4.4
11/1	Ahead	U	N		1	41	-	778	1900	1330	58.5%	-	-	-	1.3	5.9	3.8
11/2	Ahead Right	U	N		1	41	-	847	1900	1330	63.7%	-	-	-	1.5	6.3	4.7
11/3	Right	U	N		1	41	-	262	1900	1330	19.7%	-	-	-	0.4	4.8	1.6
12/1	Ahead	U	B		1	10	-	26	1900	348	7.5%	-	-	-	0.1	19.2	0.4
12/2	Ahead Right	U	B		1	10	-	233	1900	348	66.9%	-	-	-	1.9	29.6	3.9
12/3	Right	U	B		1	10	-	193	1900	348	55.4%	-	-	-	1.1	20.8	3.4
13/1	Ahead	U	E		1	39	-	641	1900	1267	50.6%	-	-	-	1.1	6.0	3.4
13/2	Ahead Right	U	E		1	39	-	637	1900	1267	50.3%	-	-	-	1.2	6.9	4.3
13/3	Right	U	E		1	39	-	824	1900	1267	65.1%	-	-	-	1.4	6.3	6.8

Basic Results Summary


14/1	Ahead	U	H		1	36	-	588	1900	1172	50.2%	-	-	-	1.1	6.9	3.7
14/2	Ahead Right	U	H		1	36	-	863	1900	1172	73.7%	-	-	-	2.1	8.9	3.9
14/3	Right	U	H		1	36	-	203	1900	1172	17.3%	-	-	-	0.5	8.8	3.5
15/1	Ahead	U	K		1	15	-	424	1900	507	83.7%	-	-	-	4.8	40.6	8.8
15/2	Right	U	K		1	15	-	291	1900	507	57.4%	-	-	-	1.0	12.3	2.9
15/3	Right	U	K		1	15	-	289	1900	507	57.0%	-	-	-	1.2	15.5	4.9
		C1	Stream: 1 PRC for Signalled Lanes (%)		28.4	Total Delay for Signalled Lanes (pcuHr):		8.28	Cycle Time (s):		60						
		C1	Stream: 2 PRC for Signalled Lanes (%)		38.3	Total Delay for Signalled Lanes (pcuHr):		7.68	Cycle Time (s):		60						
		C1	Stream: 3 PRC for Signalled Lanes (%)		22.2	Total Delay for Signalled Lanes (pcuHr):		8.55	Cycle Time (s):		60						
		C1	Stream: 4 PRC for Signalled Lanes (%)		7.5	Total Delay for Signalled Lanes (pcuHr):		12.79	Cycle Time (s):		60						
		C1	Stream: 5 PRC for Signalled Lanes (%)		27.0	Total Delay for Signalled Lanes (pcuHr):		7.08	Cycle Time (s):		60						
				PRC Over All Lanes (%)	7.5	Total Delay Over All Lanes (pcuHr):		44.38									

Appendix G

Proposed Junction Mitigation

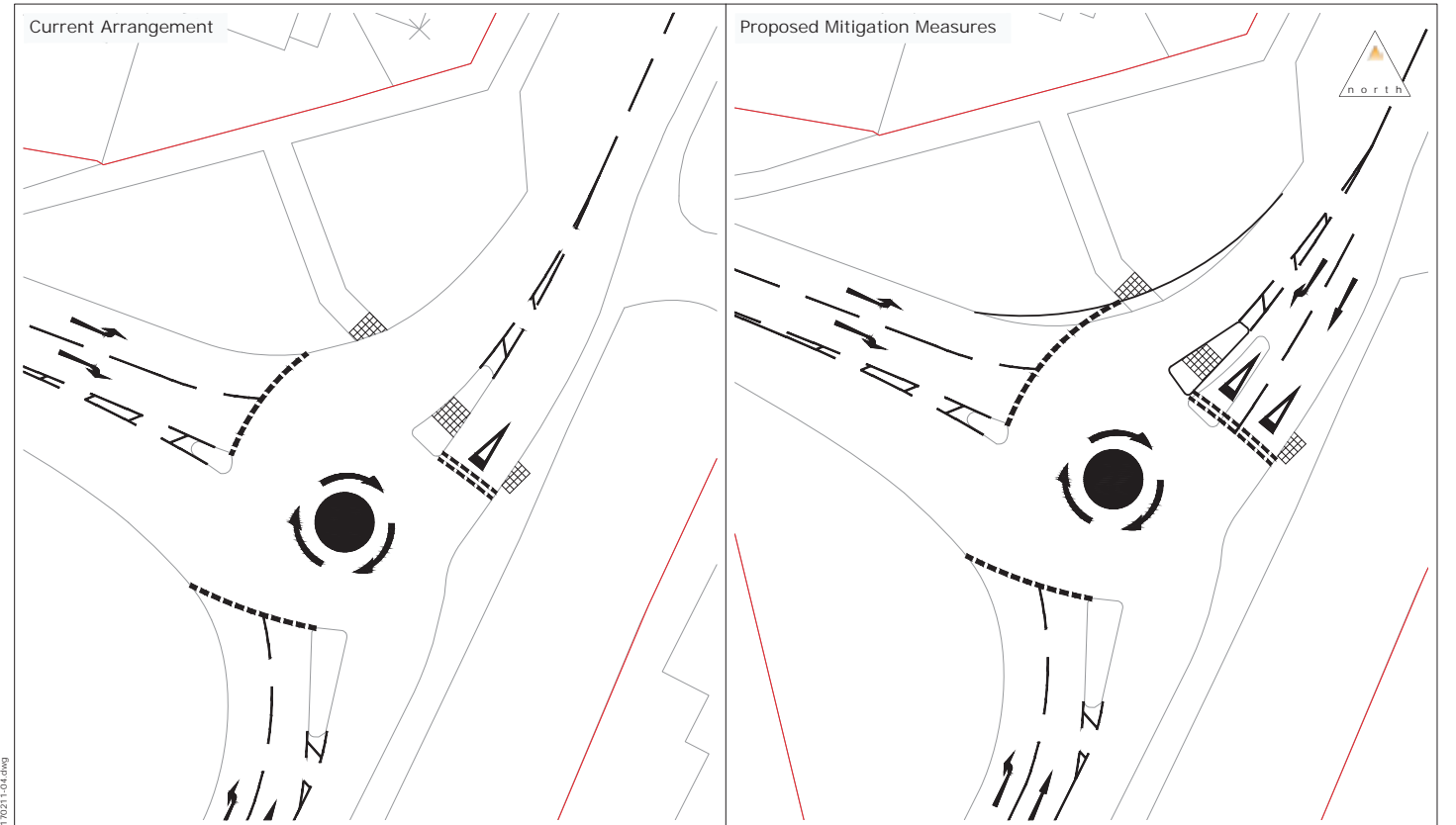


Legend  
 — Highway Boundary

 <small>84 North Street Guldford Surrey GU1 4AU T: 01483 531 300 www.motion.co.uk</small>	Project: <b>Bicester Office Park</b>		
	Title: <b>A41/Lakeview Drive - Proposed Highway Arrangement</b>		
<small>Golden Cross House 8 Dunsmuir Street London WC2N 4JF T: 020 7031 8141</small>	Scale: 1:1000 (@ A3)	Drawing: <b>170211-02</b>	Revision: -

N:\Projects\170211\Drawings\170211-02.dwg

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Legend:  
 — Highway Boundary

 <small>84 North Street Guldford Surrey GU1 4AU T: 01483 531 300 www.motion.co.uk</small>	Project: <b>Bicester Office Park</b>		
	Title: <b>Oxford Road/Middleton Stoney Mini Roundabout Mitigation Scheme</b>		
<small>Golden Cross House 8 Dunsmuir Street London WC2N 4JF T: 020 7031 8141</small>	Scale: 1:250 (@ A3)	Drawing: <b>170211-04</b>	Revision: -

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# ES Volume II: Technical Appendices

## Appendix 8.1: Legislative and Policy Context

## Policy, Guidance and Legislative Context

Government policy and practice in relation to noise and planning is contained in three documents:

- The Noise Policy Statement for England (NPSE), May 2010<sup>i</sup>;
- The National Planning Policy Framework (NPPF), March 2012<sup>ii</sup>;and
- The Planning Practice Guidance – Noise (PPG-N) (last revised December 2014)<sup>iii</sup>.

The relevant matters within these three documents are discussed below.

### The Noise Policy Statement for England (NPSE)

The NPSE contains the current Government policy aims in relation to noise and its impact.

The “first aim” of the NPSE is to “avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.” The noise being assessed in this case could reasonably be described as environmental noise. Impacts such as “annoyance” and “sleep disturbance” are impacts both on health and quality of life.

The NPSE introduced the concept of a Significant Observed Adverse Effect Level (SOAEL) this being the level above which significant adverse effects on health and quality of life are deemed to occur. The second aim of NPSE is to “mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.”

NPSE states at paragraph 2.24 that this aim

*“...refers to the situation where the impact lies somewhere between LOAEL [the “low observed adverse effect level”] and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development. This does not mean that such adverse effects cannot occur.”*

The third aim of NPSE is to

*“where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development...”*

NPSE notes that *“the protection of quiet places and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim.”*

NPSE does not provide detailed guidance which help define the different “effect” levels. However, this guidance is provided within the Government’s Planning Practice Guidance – Noise and is discussed below.

Although the NPSE does not attribute noise levels to the different effect levels, it does refer to World Health Organisation (WHO) advice which does define such levels – in terms of impacts such as annoyance and sleep disturbance. The provisions of this document: the WHO “Guidelines for Community Noise” are discussed below.

### The National Planning Policy Framework (NPPF)

This contains the Government’s overarching planning policy. It was released in March 2012. The NPPF provides policy objectives that are very similar to those of NPSE, discussed above. Therefore, the provisions of the NPPF are not discussed further.

### Planning Practice Guidance – Noise (PPG-N)

The PPG-N is an internet based document that is updated from time-to-time as necessary. The last revision was released in December 2014. It contains the evolving “practice” guidance rather than “policy” guidance.

This document reinforces the concept introduced by the NPSE (LOAEL and SOAEL) discussed above. In addition the PPG-N clearly and comprehensively defines a person’s perception at these different effect levels.

The PPG-N States:

*“At the lowest extreme, when noise is not noticeable, there is by definition no effect. As the noise exposure increases, it will*



cross the no observed effect level as it becomes noticeable. However, the noise has no adverse effect so long as the exposure is such that it does not cause any change in behaviour or attitude. The noise can slightly affect the acoustic character of an area but not to the extent there is a perceived change in quality of life. If the noise exposure is at this level no specific measures are required to manage the acoustic environment.

As the exposure increases further, it crosses the lowest observed adverse effect level boundary above which the noise starts to cause small changes in behaviour and attitude, for example, having to turn up the volume on the television or needing to speak more loudly to be heard. The noise therefore starts to have an adverse effect and consideration needs to be given to mitigating and minimising those effects (taking account of the economic and social benefits being derived from the activity causing the noise).

Increasing noise exposure will at some point cause the significant observed adverse effect level boundary to be crossed. Above this level the noise causes a material change in behaviour such as keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present. If the exposure is above this level the planning process should be used to avoid this effect occurring, by use of appropriate mitigation such as by altering the design and layout. Such decisions must be made taking account of the economic and social benefit of the activity causing the noise, but it is undesirable for such exposure to be caused.

At the highest extreme, noise exposure would cause extensive and sustained changes in behaviour without an ability to mitigate the effect of noise. The impacts on health and quality of life are such that regardless of the benefits of the activity causing the noise, this situation should be prevented from occurring."

A table within the PPG-N summarises these matters in the form of an impact "hierarchy" table (increasing impact as one looks down the table). This is reproduced as Table 5.1 below.

Table 1 PPG-N hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly effect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting back to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect Level	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

The criteria within this table could be used on its own to form a subjective judgment as to the degree of impact from a proposed scheme. However, the NPSE intimates that an objective judgment using noise based criteria is also useful.

The NPSE, NPPF and PPG-N do not ascribe noise levels or changes in noise levels to any of the effects discussed. Therefore, it is necessary to consider other guidance which attributes noise levels or changes in noise levels to health effects such as annoyance. This guidance is discussed in the assessment methodology that follows.

### [Local Planning Policy](#)

The Adopted Cherwell Local Plan 2011-2031<sup>iv</sup> contains general policies relating to the environment and development, but these policies do not provide any additional or alternative assessment methodologies, guidance, or thresholds beyond those set out in the national and international standards. In addition, "Bicester Policy 4" relates to the Bicester Business Park site, but this does not contain any specific guidance or requirements in relation to noise.

### [World Health Organisation - Guidelines for Community Noise \(1999\)](#)

The WHO Guidelines contain a matrix of guideline values for effects from noise within different environments. These guideline values are set at the lowest level that produces an adverse effect, that is, the "critical health effect". As such the guideline values suggested in the Guidelines are thresholds below which effects such as annoyance during the day can be assumed to be negligible. Therefore, they are aligned to the Government policy LOAEL values.

The guideline values are set out in a table in the Executive Summary of the document. The WHO guideline values for moderate and serious annoyance during the daytime and evening are LAeq16hrs = 50 and 55 dB, respectively.

The WHO daytime guideline values are all external levels and can be considered to be freefield or façade levels.

### [National Physical Laboratory Interpretation of the WHO Guidelines \(September 1998\)<sup>v</sup>](#)

The National Physical Laboratory (NPL) report which was commissioned by the Department of the Environment, Transport and the Regions, contains a section entitled: Guide to the

Interpretation of the WHO Guidelines (the 1995 draft WHO Guidelines which were not materially different from the final 1999 Guidelines).

The summary of this section of the NPL report states:

*"In essence, the WHO guidelines represent a consensus view of international expert opinion on the lowest threshold noise levels below which the occurrence rates of particular effects can be assumed to be negligible. Exceedances of the WHO guideline values do not necessarily imply significant noise impact and indeed, it may be that significant impacts do not occur until much higher degrees of noise exposure are reached."*

It can be seen that the WHO guideline values are aligned to the Government policy LOAEL values. Significant effects, i.e. SOAEL values would not be expected until much higher levels than LOAEL values.

"Higher degrees of exposure" is not defined by NPL. However, in our judgment, this would equate to 10 dB – around a doubling of the loudness. This relationship should apply to the setting of SOAEL values, i.e. they should be 10 dB higher than the LOAEL values or WHO guideline values.

### [Legislative Context](#)

The applicable legislative framework is contained in Part III of the Environmental Protection Act 1990<sup>vi</sup> which requires local authorities to serve abatement notices where the noise is emitted from any premises, or vehicles, machinery and equipment in the street, that constitutes a statutory nuisance.

<sup>i</sup> DEFRA (2010) Noise Policy Statement for England

<sup>ii</sup> Department for Communities and Local Government (2012) National Planning Policy Framework

<sup>iii</sup> Department for Communities and Local Government (2014) Planning Practice Guidance – Noise <https://www.gov.uk/guidance/noise--2>

<sup>iv</sup> Cherwell District Council (2016) Adopted Cherwell Local Plan 2011-2031

<sup>v</sup> Porter, Flindell, Berry (1998) Health Effect Based Noise Assessment Methods: A Review and Feasibility Study. National Physical Laboratory Report CMAM 16

<sup>vi</sup> Office for Public Information (1990) Environmental Protection Act

# ES Volume II: Technical Appendices

## Appendix 8.2: Noise and Survey Results

## Bicester - Survey results

Date	Time	Duration	LAeq
12 June 2017	16:06	(0:0:8.0)	113.9
13 June 2017	13:09	(0:0:29.0)	113.8

Date	Time	Duration	LAeq	LAFmax	LA1	LA10	LA90
12 June 2017	16:15	(0:14:58.0)	62.9	83.3	70.7	66.1	51.9
12 June 2017	16:30	(0:14:58.0)	61.5	79.3	69.4	65.1	51.7
12 June 2017	16:45	(0:14:58.0)	64.0	85.7	74.2	65.8	51.6
12 June 2017	17:00	(0:14:58.0)	61.9	73.1	70.3	65.4	53.0
12 June 2017	17:15	(0:14:58.0)	61.2	75.0	68.7	65.1	51.2
12 June 2017	17:30	(0:14:58.0)	61.6	75.7	69.6	65.2	52.0
12 June 2017	17:45	(0:14:58.0)	61.4	74.8	69.7	65.2	52.0
12 June 2017	18:00	(0:14:57.0)	62.4	87.9	69.9	64.6	52.1
12 June 2017	18:15	(0:14:58.0)	66.7	93.0	72.3	65.1	52.0
12 June 2017	18:30	(0:14:58.0)	60.7	75.6	69.8	64.6	51.2
12 June 2017	18:45	(0:14:58.0)	60.1	73.2	68.5	64.2	50.7
12 June 2017	19:00	(0:14:58.0)	63.0	86.5	70.9	64.9	51.0
12 June 2017	19:15	(0:14:58.0)	59.4	70.9	68.4	63.5	50.3
12 June 2017	19:30	(0:14:58.0)	59.8	82.0	68.1	63.1	50.3
12 June 2017	19:45	(0:14:58.0)	61.1	81.9	72.0	64.0	49.7
12 June 2017	20:00	(0:14:58.0)	59.5	76.9	69.4	63.2	49.6
12 June 2017	20:15	(0:14:58.0)	58.7	70.6	67.4	63.4	48.4
12 June 2017	20:30	(0:14:58.0)	57.8	70.1	66.2	62.3	48.6
12 June 2017	20:45	(0:14:58.0)	58.2	73.4	66.6	62.5	48.4
12 June 2017	21:00	(0:14:58.0)	59.0	79.6	70.1	61.9	48.1
12 June 2017	21:15	(0:14:58.0)	60.4	85.1	69.1	61.5	46.0
12 June 2017	21:30	(0:14:58.0)	56.8	75.7	67.1	60.4	45.2
12 June 2017	21:45	(0:14:58.0)	57.0	72.0	67.9	61.5	43.8
12 June 2017	22:00	(0:14:58.0)	56.9	78.9	67.2	60.3	44.4
12 June 2017	22:15	(0:14:57.0)	54.5	70.4	64.6	58.9	44.1
12 June 2017	22:30	(0:14:58.0)	58.9	84.2	70.6	60.2	43.5
12 June 2017	22:45	(0:14:58.0)	58.1	81.6	69.8	60.0	42.8
12 June 2017	23:00	(0:14:58.0)	57.7	76.7	70.3	59.9	44.3
12 June 2017	23:15	(0:14:57.0)	56.0	74.8	69.0	57.7	41.4
12 June 2017	23:30	(0:14:57.0)	55.0	76.1	67.9	55.7	40.6
12 June 2017	23:45	(0:14:58.0)	55.1	73.7	68.4	56.8	40.8
13 June 2017	0:00	(0:14:56.0)	54.2	71.3	67.1	56.8	41.5
13 June 2017	0:15	(0:14:56.0)	55.9	74.9	69.3	57.2	41.0
13 June 2017	0:30	(0:14:58.0)	53.1	73.7	66.2	51.4	40.4
13 June 2017	0:45	(0:14:58.0)	52.2	72.1	66.5	51.1	38.9
13 June 2017	1:00	(0:14:58.0)	53.9	77.3	67.3	50.7	36.9
13 June 2017	1:15	(0:14:58.0)	51.9	68.6	64.2	55.1	39.5
13 June 2017	1:30	(0:14:58.0)	53.0	72.0	67.3	53.6	38.2
13 June 2017	1:45	(0:14:58.0)	51.6	75.5	63.7	49.6	37.9
13 June 2017	2:00	(0:14:57.0)	51.4	72.3	63.0	53.0	37.5
13 June 2017	2:15	(0:14:58.0)	57.1	77.1	71.8	54.5	38.2
13 June 2017	2:30	(0:14:58.0)	55.3	75.6	68.9	55.1	36.0
13 June 2017	2:45	(0:14:58.0)	51.3	69.8	65.0	51.8	36.6



13 June 2017	3:00	(0:14:58.0)	55.0	74.8	68.6	54.5	37.9
13 June 2017	3:15	(0:14:58.0)	52.6	72.0	66.1	52.4	38.9
13 June 2017	3:30	(0:14:58.0)	53.9	74.4	66.8	55.9	39.1
13 June 2017	3:45	(0:14:58.0)	57.0	73.6	70.4	59.0	40.8
13 June 2017	4:00	(0:14:58.0)	58.5	80.2	70.9	59.6	42.1
13 June 2017	4:15	(0:14:58.0)	58.0	73.8	70.3	60.5	42.6
13 June 2017	4:30	(0:14:58.0)	57.4	72.7	68.6	60.8	45.1
13 June 2017	4:45	(0:14:58.0)	57.6	74.7	70.2	59.9	44.6
13 June 2017	5:00	(0:14:58.0)	60.7	78.3	71.9	64.3	47.0
13 June 2017	5:15	(0:14:58.0)	62.1	79.9	72.5	65.8	48.3
13 June 2017	5:30	(0:14:58.0)	62.5	80.5	72.6	66.5	48.5
13 June 2017	5:45	(0:14:58.0)	60.9	74.5	71.2	65.2	48.5
13 June 2017	6:00	(0:14:58.0)	62.3	78.2	71.7	66.5	50.0
13 June 2017	6:15	(0:14:58.0)	62.8	78.4	72.3	66.7	51.5
13 June 2017	6:30	(0:14:58.0)	63.0	73.5	71.0	66.8	51.6
13 June 2017	6:45	(0:14:58.0)	63.7	82.4	71.8	67.3	50.2
13 June 2017	7:00	(0:14:58.0)	63.0	81.2	70.7	66.7	50.6
13 June 2017	7:15	(0:14:58.0)	63.0	78.8	71.2	66.6	51.7
13 June 2017	7:30	(0:14:58.0)	63.0	75.1	70.9	66.7	52.0
13 June 2017	7:45	(0:14:58.0)	62.1	72.9	69.9	66.1	50.6
13 June 2017	8:00	(0:14:58.0)	63.8	81.2	73.5	66.8	50.8
13 June 2017	8:15	(0:14:58.0)	62.4	75.3	71.7	66.2	50.2
13 June 2017	8:30	(0:14:58.0)	63.5	88.6	71.2	66.9	50.1
13 June 2017	8:45	(0:14:57.0)	61.2	74.6	70.1	65.1	49.6
13 June 2017	9:00	(0:14:58.0)	62.2	75.8	70.7	66.1	49.8
13 June 2017	9:15	(0:14:58.0)	62.6	74.2	71.4	66.4	51.2
13 June 2017	9:30	(0:14:58.0)	61.6	75.6	70.4	65.8	48.8
13 June 2017	9:45	(0:14:57.0)	62.7	74.5	71.7	66.9	49.0
13 June 2017	10:00	(0:14:57.0)	64.0	83.0	74.3	67.3	50.2
13 June 2017	10:15	(0:14:58.0)	61.4	75.6	69.9	65.3	48.9
13 June 2017	10:30	(0:14:57.0)	61.6	76.3	71.4	65.4	49.0
13 June 2017	10:45	(0:14:57.0)	61.9	79.0	71.7	65.6	48.7
13 June 2017	11:00	(0:14:58.0)	60.6	76.9	69.4	64.7	48.8
13 June 2017	11:15	(0:14:57.0)	61.5	76.1	69.8	65.2	49.9
13 June 2017	11:30	(0:14:57.0)	60.6	73.0	69.4	64.5	48.0
13 June 2017	11:45	(0:14:58.0)	62.2	75.2	71.3	66.2	49.7
13 June 2017	12:00	(0:14:57.0)	61.6	78.0	71.5	65.0	48.8
13 June 2017	12:15	(0:14:57.0)	60.7	74.7	69.7	64.9	47.6
13 June 2017	12:30	(0:14:57.0)	62.2	83.4	71.1	65.2	48.8
13 June 2017	12:45	(0:14:57.0)	62.0	73.6	70.6	66.2	48.7
13 June 2017	13:00	(0:8:51.0)	61.9	75.1	71.4	65.8	49.3

# ES Volume II: Technical Appendices

## Appendix 8.3: Construction Noise Calculations



# ES Volume II: Technical Appendices

## Appendix 8.4: Road Traffic Noise Calculations



**Construction Phase - A41/Oxford Road**

Link	2017 Baseline (Observed + Committed Development)			2017 Baseline + Construction Traffic			Overall Change, dB	HGV Change, dB	Total Change, dB
	Total Vehicles	HGV	HGV%	Total Vehicles	HGV	HGV%			
A41 (e)	23210	120	0.52%	23465	180	0.77%	0.0	0.1	0.1
Oxford Road (n. of Lakeview Drive)	32598	1380	4.23%	32853	1440	4.38%	0.0	0.0	0.1
Oxford Road (s. of Lakeview Drive)	30220	1446	4.78%	30475	1506	4.94%	0.0	0.0	0.1

**Development Impacts - 2026**

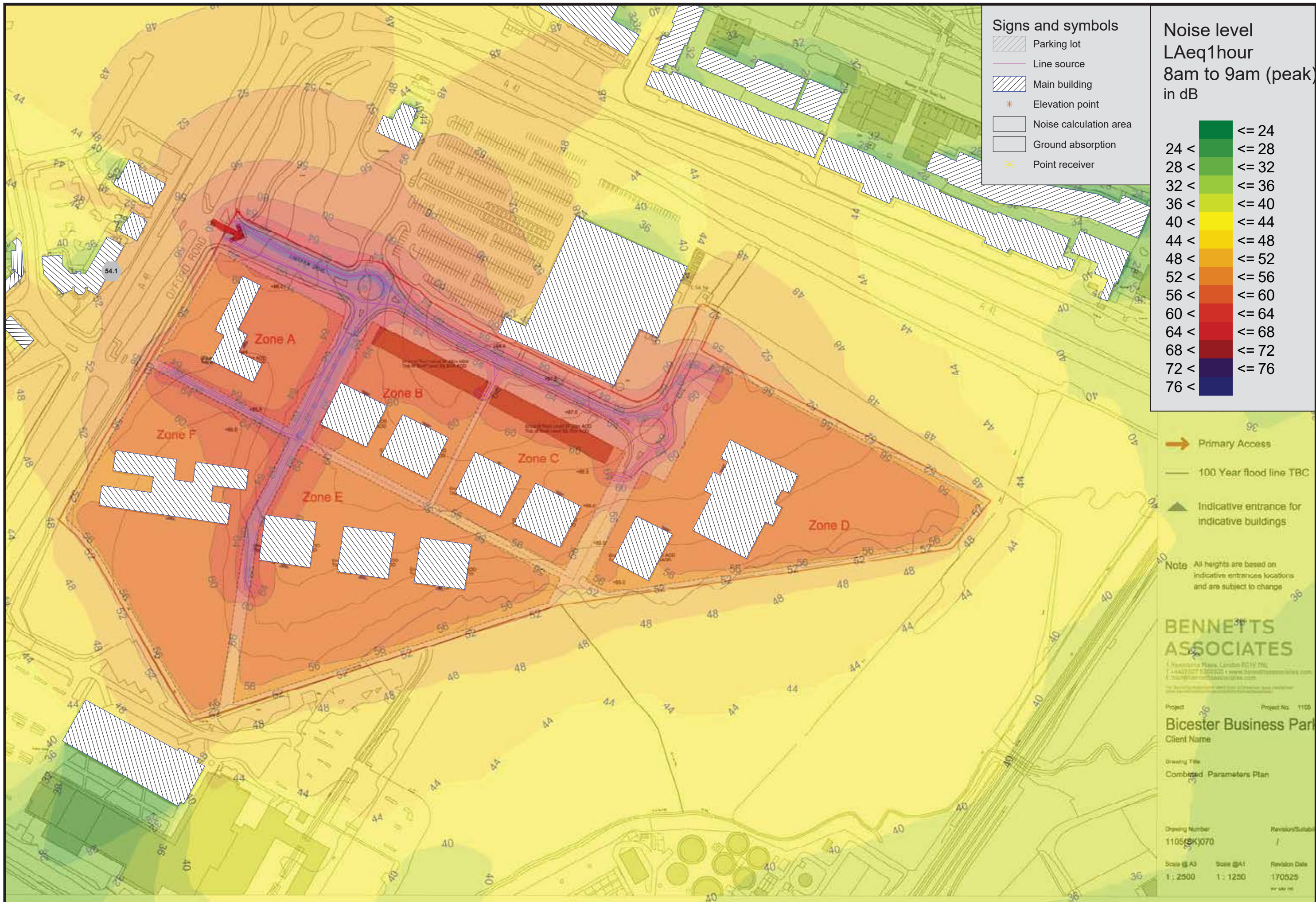
Link	2026 Future Baseline (Growthed + Committed Development)			2026 Future Baseline + Proposed Development			Overall Change, dB	HGV Change, dB	Total Change, dB
	Total Vehicles	HGV	HGV%	Total Vehicles	HGV	HGV%			
Kings End	21489	141	0.66%	25941	121	0.47%	0.8	0.0	0.8
Pingle Drive	5674	12	0.21%	6180	12	0.19%	0.4	0.0	0.4
A41	27228	954	3.50%	33704	954	2.83%	0.9	-0.1	0.8
Oxford Road (n. of Lakeview Drive)	38241	1619	4.23%	48938	1619	3.31%	1.1	-0.2	0.9
Lakeview Drive	14956	59	0.39%	21328	59	0.28%	1.5	0.0	1.5
Oxford Road (s. of Lakeview Drive)	35451	1696	4.78%	43391	1696	3.91%	0.9	-0.2	0.7
Saxon Fields	1285	1	0.08%	1285	1	0.08%	0.0	0.0	0.0

**Cumulative Impacts - 2026 v 2017 Baseline**

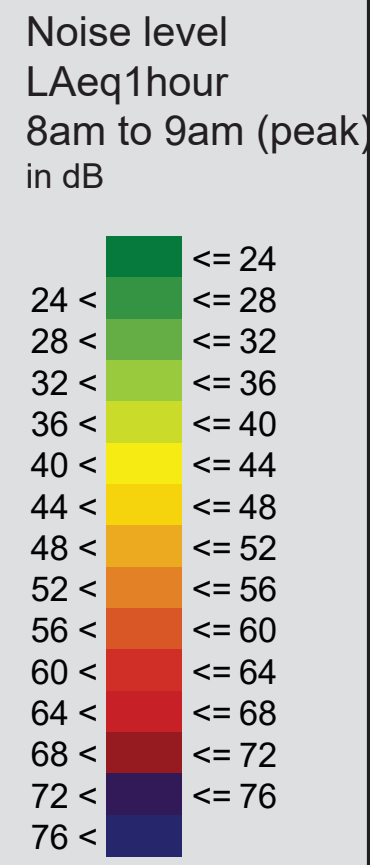
Link	2017 Baseline			2026 Future Baseline + Proposed Development			Overall Change, dB	HGV Change, dB	Total Change, dB
	Total Vehicles	HGV	HGV%	Total Vehicles	HGV	HGV%			
Kings End	18318	120	0.66%	25941	121	0.47%	1.5	0.0	1.5
Pingle Drive	4837	10	0.21%	6180	12	0.19%	1.1	0.0	1.1
A41	23210	813	3.50%	33704	954	2.83%	1.6	-0.1	1.5
Oxford Road (n. of Lakeview Drive)	32598	1380	4.23%	48938	1619	3.31%	1.8	-0.2	1.6
Lakeview Drive	12749	50	0.39%	21328	59	0.28%	2.2	0.0	2.2
Oxford Road (s. of Lakeview Drive)	30220	1446	4.78%	43391	1696	3.91%	1.6	-0.2	1.4
Saxon Fields	1095	1	0.09%	1285	1	0.08%	0.7	0.0	0.7

# ES Volume II: Technical Appendices

## Appendix 8.5: SoundPLAN Computer Model Output – Site Activity – Peak Hour



- Signs and symbols**
- Parking lot
  - Line source
  - Main building
  - Elevation point
  - Noise calculation area
  - Ground absorption
  - Point receiver



- Primary Access
- 100 Year flood line TBC
- Indicative entrance for indicative buildings

**Note** All heights are based on indicative entrances locations and are subject to change

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 Project No.: 1105  
 Client Name:  
 Drawing Title:  
 Combined Parameters Plan

Drawing Number: 1105(BK)070  
 Revision/Status: 1  
 Scale @ A3: 1:2500  
 Scale @ A1: 1:1250  
 Revision Date: 170525  
 W: M: R:

# ES Volume II: Technical Appendices

## Appendix 9.1: Glossary

## Air Quality Appendices - Bicester Business Park

July 2017



Experts in air quality  
management & assessment

### Document Control

<b>Client</b>	TRIUM	<b>Principal Contact</b>	Abbey Musker
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<b>Job Number</b>	J2904A
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<b>Report Prepared By:</b>	Pauline Jezequel and Chris Whall
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### Document Status and Review Schedule

Report No.	Date	Status	Reviewed by
J2904A/2/F1	14 July 2017	Final	Stephen Moorcroft (Director)

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## 9.1. Glossary

<b>AADT</b>	Annual Average Daily Traffic
<b>ADMS-Roads</b>	Atmospheric Dispersion Modelling System model for Roads
<b>AQC</b>	Air Quality Consultants
<b>AQAL</b>	Air Quality Assessment Level
<b>AQMA</b>	Air Quality Management Area
<b>AURN</b>	Automatic Urban and Rural Network
<b>CEMP</b>	Construction Environmental Management Plan
<b>CURED</b>	Calculator Using Realistic Emissions for Diesels
<b>DCLG</b>	Department for Communities and Local Government
<b>Defra</b>	Department for Environment, Food and Rural Affairs
<b>DfT</b>	Department for Transport
<b>DMP</b>	Dust Management Plan
<b>EFT</b>	Emission Factor Toolkit
<b>EPUK</b>	Environmental Protection UK
<b>Exceedance</b>	A period of time when the concentration of a pollutant is greater than the appropriate air quality objective. This applies to specified locations with relevant exposure
<b>HDV</b>	Heavy Duty Vehicles (> 3.5 tonnes)
<b>HMSO</b>	Her Majesty's Stationery Office
<b>HGV</b>	Heavy Goods Vehicle
<b>IAQM</b>	Institute of Air Quality Management
<b>LAQM</b>	Local Air Quality Management
<b>LDV</b>	Light Duty Vehicles (<3.5 tonnes)
<b>µg/m<sup>3</sup></b>	Microgrammes per cubic metre
<b>NO</b>	Nitric oxide
<b>NO<sub>2</sub></b>	Nitrogen dioxide
<b>NO<sub>x</sub></b>	Nitrogen oxides (taken to be NO <sub>2</sub> + NO)

<b>NPPF</b>	National Planning Policy Framework
<b>Objectives</b>	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
<b>PM<sub>10</sub></b>	Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter
<b>PM<sub>2.5</sub></b>	Small airborne particles less than 2.5 micrometres in aerodynamic diameter
<b>PPG</b>	Planning Practice Guidance
<b>Standards</b>	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal
<b>TEA</b>	Triethanolamine – used to absorb nitrogen dioxide
<b>TEMPro</b>	Trip End Model Presentation Program

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## Appendix 9.2: Legislative and Planning Policy Context



## 9.2. Relevant Guidance and Policies

### Air Quality Strategy

- 9.1. The Air Quality Strategy<sup>1</sup> published by the Department for Environment, Food, and Rural Affairs (Defra) and Devolved Administrations, provides the policy framework for air quality management and assessment in the UK. It provides air quality standards and objectives for key air pollutants, which are designed to protect human health and the environment. It also sets out how the different sectors: industry, transport and local government, can contribute to achieving the air quality objectives. Local authorities are seen to play a particularly important role. The strategy describes the Local Air Quality Management (LAQM) regime that has been established, whereby every authority has to carry out regular reviews and assessments of air quality in its area to identify whether the objectives have been, or will be, achieved at relevant locations, by the applicable date. If this is not the case, the authority must declare an Air Quality Management Area (AQMA), and prepare an action plan which identifies appropriate measures that will be introduced in pursuit of the objectives.

### Planning Policy

#### National Policies

- 9.2. The National Planning Policy Framework (NPPF)<sup>2</sup> sets out planning policy for England in one place. It places a general presumption in favour of sustainable development, stressing the importance of local development plans, and states that the planning system should perform an environmental role to minimise pollution. One of the twelve core planning principles notes that planning should “contribute to...reducing pollution”. To prevent unacceptable risks from air pollution, planning decisions should ensure that new development is appropriate for its location. The NPPF states that the “effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account”.
- 9.3. More specifically the NPPF makes clear 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”.*

<sup>1</sup> Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Defra.

<sup>2</sup> National Planning Policy Framework (2012), DCLG.

- 9.4. The NPPF is now supported by Planning Practice Guidance (PPG)<sup>3</sup>, which includes guiding principles on how planning can take account of the impacts of new development on air quality. The PPG states that “Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with EU Limit Values” and “It is important that the potential impact of new development on air quality is taken into account ... where the national assessment indicates that relevant limits have been exceeded or are near the limit”. The role of the local authorities is covered by the LAQM regime, with the PPG stating that local authority Air Quality Action Plans “identify measures that will be introduced in pursuit of the objectives”. In addition, the PPG makes clear that “Odour and dust can also be a planning concern, for example, because of the effect on local amenity”.

- 9.5. The PPG states that:

*“Whether or not air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife)”.*

- 9.6. The PPG sets out the information that may be required in an air quality assessment, making clear that “Assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality”. It also provides guidance on options for mitigating air quality impacts, as well as examples of the types of measures to be considered. It makes clear that “Mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact”.

#### Regional Policies

- 9.7. Oxfordshire County Council published its Local Transport Plan<sup>4</sup> in 2015. This Plan covers the County’s transport policies up to 2031. Policy 29 states that “Oxfordshire County Council will work with district and city councils to develop and implement transport interventions to support Air Quality Action Plans, giving priority to measures which also contribute to other transport objectives.”

<sup>3</sup> DCLG (2017) Planning Practice Guidance, [Online], Available: <http://planningguidance.planningportal.gov.uk/blog/guidance/>.

<sup>4</sup> Oxfordshire County Council (2015) Connecting Oxfordshire: Local Transport Plan 2015-2031

## Air Quality Action Plans

### *National Air Quality Plans*

- 9.8. Defra has produced Air Quality Plans to reduce nitrogen dioxide concentrations in major cities throughout the UK<sup>5</sup>. Following a High Court ruling in November 2016<sup>6</sup>, Defra undertook to replace these Plans with a new Plan by 31<sup>st</sup> July 2017. To this end, Defra began consultation on its draft new Plan<sup>7</sup> in May 2017. There is currently no practical way to take account of the effects of either of the existing Plans, or the draft new Plan, in relation to the assessment presented in chapter 9 of the ES. The assessment has principally been carried out in relation to the air quality objectives, rather than the EU limit values that are the focus of the draft new Plan.

### *Local Air Quality Action Plan*

- 9.9. Cherwell District Council adopted its Air Quality Action Plan<sup>8</sup> in 2017. This Plan contains a series of measures to reduce air pollution in the District. These measures still require to be transcribed into policies in order to be implemented. One of the five priorities of the Plan is to ensure “new developments encourage and facilitate low emission and alternative transport”. Measure G.2 of the Plan proposes that all major developments include “emission statements and mitigation strategies within an appropriate air quality assessment submitted at the application stage”. Measure G.3 proposes that damage cost calculations are included within the air quality assessment. Both these measures are to be included in development management policies as part of the development of the Cherwell Local Plan Part 2 (currently under preparation).

<sup>5</sup> Defra (2015) Air quality in the UK: plan to reduce nitrogen dioxide emissions, [Online], Available:

<https://www.gov.uk/government/publications/air-quality-in-the-uk-plan-to-reduce-nitrogen-dioxide-emissions>.

<sup>6</sup> Royal Courts of Justice (2016) ClientEarth v Secretary of State for the Environment Food and Rural Affairs [2016] EWHC 2740, [Online], Available: <https://www.judiciary.gov.uk/wp-content/uploads/2016/11/clientearth-v-ssenviron-food-rural-affairs-judgment-021116.pdf>.

<sup>7</sup> Defra (2017) Improving air quality in the UK: tackling nitrogen dioxide in our towns and cities. Draft UK Air Quality Plan for tackling nitrogen dioxide.

<sup>8</sup> Cherwell District Council (2017) Air Quality Action Plan

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## Appendix 9.3: Construction Dust Assessment Procedure

### 9.3. Construction Dust Assessment Procedure

- 9.1. The criteria developed by IAQM<sup>9</sup> divide the activities on construction sites into four types to reflect their different potential impacts. These are:
- demolition;
  - earthworks;
  - construction; and
  - trackout.

- 9.2. The assessment procedure includes the four steps summarised below:

#### STEP 1: Screen the Need for a Detailed Assessment

- 9.3. An assessment is required where there is a human receptor within 350 m of the boundary of the site and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s), or where there is an ecological receptor within 50 m of the boundary of the site and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s).
- 9.4. Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is *negligible* and that any effects will be 'not significant'. No mitigation measures beyond those required by legislation will be required.

#### STEP 2: Assess the Risk of Dust Impacts

- 9.5. A site is allocated to a risk category based on two factors:
- the scale and nature of the works, which determines the potential dust emission magnitude (Step 2A); and
  - the sensitivity of the area to dust effects (Step 2B).
- 9.6. These two factors are combined in Step 2C, which is to determine the risk of dust impacts with no mitigation applied. The risk categories assigned to the site may be different for each of the four potential sources of dust (demolition, earthworks, construction and trackout).

<sup>9</sup> IAQM (2016) Guidance on the Assessment of Dust from Demolition and Construction v1.1.

#### Step 2A – Define the Potential Dust Emission Magnitude

- 9.7. Dust emission magnitude is defined as either 'Small', 'Medium', or 'Large'. The IAQM guidance explains that this classification should be based on professional judgement, but provides the examples in Table 9.1.1.

**Table 9.1.1: Examples of How the Dust Emission Magnitude Class May be Defined**

Class	Examples
<b>Demolition</b>	
<b>Large</b>	Total building volume >50,000 m <sup>3</sup> , potentially dusty construction material (e.g. concrete), on site crushing and screening, demolition activities >20 m above ground level
<b>Medium</b>	Total building volume 20,000 m <sup>3</sup> – 50,000 m <sup>3</sup> , potentially dusty construction material, demolition activities 10-20 m above ground level
<b>Small</b>	Total building volume <20,000 m <sup>3</sup> , construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10 m above ground, demolition during wetter months
<b>Earthworks</b>	
<b>Large</b>	Total site area >10,000 m <sup>2</sup> , potentially dusty soil type (e.g. clay, which will be prone to suspension when dry to due small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >8 m in height, total material moved >100,000 tonnes
<b>Medium</b>	Total site area 2,500 m <sup>2</sup> – 10,000 m <sup>2</sup> , moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 4 m – 8 m in height, total material moved 20,000 tonnes – 100,000 tonnes
<b>Small</b>	Total site area <2,500 m <sup>2</sup> , soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4 m in height, total material moved <10,000 tonnes, earthworks during wetter months
<b>Construction</b>	
<b>Large</b>	Total building volume >100,000 m <sup>3</sup> , piling, on site concrete batching; sandblasting
<b>Medium</b>	Total building volume 25,000 m <sup>3</sup> – 100,000 m <sup>3</sup> , potentially dusty construction material (e.g. concrete), piling, on site concrete batching
<b>Small</b>	Total building volume <25,000 m <sup>3</sup> , construction material with low potential for dust release (e.g. metal cladding or timber)
<b>Trackout <sup>a</sup></b>	
<b>Large</b>	>50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m
<b>Medium</b>	10-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m
<b>Small</b>	<10 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m

<sup>a</sup> These numbers are for vehicles that leave the site after moving over unpaved ground.

#### Step 2B – Define the Sensitivity of the Area

- 9.8. The sensitivity of the area is defined taking account of a number of factors:
- the specific sensitivities of receptors in the area;

- the proximity and number of those receptors;
- in the case of PM<sub>10</sub>, the local background concentration; and
- site-specific factors, such as whether there are natural shelters to reduce the risk of wind-blown dust.

9.9. The first requirement is to determine the specific sensitivities of local receptors. The IAQM guidance recommends that this should be based on professional judgment, taking account of the principles in Table 9.1.2. These receptor sensitivities are then used in the matrices set out in Table 9.1.3, Table 9.1.4 and Table 9.1.5 to determine the sensitivity of the area. Finally, the sensitivity of the area is considered in relation to any other site-specific factors, such as the presence of natural shelters etc., and any required adjustments to the defined sensitivities are made.

**Step 2C – Define the Risk of Impacts**

9.10. The dust emission magnitude determined at Step 2A is combined with the sensitivity of the area determined at Step 2B to determine the *risk* of impacts with no mitigation applied. The IAQM guidance provides the matrix in Table 9.1.6 as a method of assigning the level of risk for each activity.

**STEP 3: Determine Site-specific Mitigation Requirements**

9.11. The IAQM guidance provides a suite of recommended and desirable mitigation measures which are organised according to whether the outcome of Step 2 indicates a low, medium, or high risk. The list provided in the IAQM guidance has been used as the basis for the requirements set out in Appendix 9.7.

**STEP 4: Determine Significant Effects**

9.12. The IAQM guidance does not provide a method for assessing the significance of effects before mitigation, and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, the IAQM guidance is clear that the residual effect will normally be ‘not significant’.

9.13. The IAQM guidance recognises that, even with a rigorous dust management plan in place, it is not possible to guarantee that the dust mitigation measures will be effective all of the time, for instance under adverse weather conditions. The local community may therefore experience occasional, short-term dust annoyance. The scale of this would not normally be considered sufficient to change the conclusion that the effects will be ‘not significant’.

**Table 9.1.2: Principles to be Used When Defining Receptor Sensitivities**

Class	Principles	Examples
<b>Sensitivities of People to Dust Soiling Effects</b>		
<b>High</b>	users can reasonably expect enjoyment of a high level of amenity; or the appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land	dwellings, museum and other culturally important collections, medium and long term car parks and car showrooms
<b>Medium</b>	users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or the appearance, aesthetics or value of their property could be diminished by soiling; or the 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	parks and places of work
<b>Low</b>	the enjoyment of amenity would not reasonably be expected; or there is property that would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land	playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads
<b>Sensitivities of People to the Health Effects of PM<sub>10</sub></b>		
<b>High</b>	locations where members of the public may be exposed for eight hours or more in a day	residential properties, hospitals, schools and residential care homes
<b>Medium</b>	locations where the people exposed are workers, and where individuals may be exposed for eight hours or more in a day.	may include office and shop workers, but will generally not include workers occupationally exposed to PM <sub>10</sub>
<b>Low</b>	locations where human exposure is transient	public footpaths, playing fields, parks and shopping streets
<b>Sensitivities of Receptors to Ecological Effects</b>		
<b>High</b>	locations with an international or national designation and the designated features may be affected by dust soiling; or locations where there is a community of a particularly dust sensitive species	Special Areas of Conservation with dust sensitive features
<b>Medium</b>	locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or locations with a national designation where the features may be affected by dust deposition	Sites of Special Scientific Interest with dust sensitive features
<b>Low</b>	locations with a local designation where the features may be affected by dust deposition	Local Nature Reserves with dust sensitive features

**Table 9.1.3: Sensitivity of the Area to Dust Soiling Effects on People and Property <sup>10</sup>**

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

Table 9.1.4: Sensitivity of the Area to Human Health Effects <sup>10</sup>

Receptor Sensitivity	Annual Mean PM <sub>10</sub>	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32 µg/m <sup>3</sup>	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m <sup>3</sup>	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m <sup>3</sup>	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg/m <sup>3</sup>	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32 µg/m <sup>3</sup>	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32 µg/m <sup>3</sup>	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28 µg/m <sup>3</sup>	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24 µg/m <sup>3</sup>	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Table 9.1.5: Sensitivity of the Area to Ecological Effects <sup>10</sup>

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

<sup>10</sup> For demolition, earthworks and construction, distances are taken either from the dust source or from the boundary of the site. For trackout, distances are measured from the sides of roads used by construction traffic. Without mitigation, trackout may occur from roads up to 500 m from sites with a *large* dust emission magnitude, 200 m from sites with a *medium* dust emission magnitude and 50 m from sites with a *small* dust emission magnitude, as measured from the site exit. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50 m from the edge of the road.

Table 9.1.6: Defining the Risk of Dust Impacts

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
<b>Demolition</b>			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
<b>Earthworks</b>			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
<b>Construction</b>			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
<b>Trackout</b>			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

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## Appendix 9.4: EPUK & IAQM Planning for Air Quality Guidance



## 9.4. EPUK & IAQM Planning for Air Quality Guidance

9.1. The guidance issued by EPUK and IAQM<sup>11</sup> is comprehensive in its explanation of the place of air quality in the planning regime. Key sections of the guidance not already mentioned above are set out below.

### Air Quality as a Material Consideration

*“Any air quality issue that relates to land use and its development is capable of being a material planning consideration. The weight, however, given to air quality in making a planning application decision, in addition to the policies in the local plan, will depend on such factors as:*

- *the severity of the impacts on air quality;*
- *the air quality in the area surrounding the proposed development;*
- *the likely use of the development, i.e. the length of time people are likely to be exposed at that location; and*
- *the positive benefits provided through other material considerations”.*

### Recommended Best Practice

9.2. The guidance goes into detail on how all development proposals can and should adopt good design principles that reduce emissions and contribute to better air quality management. It states:

*“The basic concept is that good practice to reduce emissions and exposure is incorporated into all developments at the outset, at a scale commensurate with the emissions”.*

9.3. The guidance sets out a number of good practice principles that should be applied to all developments that:

- include 10 or more dwellings;
- where the number of dwellings is not known, residential development is carried out on a site of more than 0.5 ha;
- provide more than 1,000 m<sup>2</sup> of commercial floorspace;
- are carried out on land of 1 ha or more.

9.4. The good practice principles are that:

<sup>11</sup> Moorcroft and Barrowcliffe et al (2017) Land-Use Planning & Development Control: Planning For Air Quality v1.2, IAQM, London.

- New developments should not contravene the Council’s Air Quality Action Plan, or render any of the measures unworkable;
- Wherever possible, new developments should not create a new “street canyon”, as this inhibits pollution dispersion;
- Delivering sustainable development should be the key theme of any application;
- New development should be designed to minimise public exposure to pollution sources, e.g. by locating habitable rooms away from busy roads;
- The provision of at least 1 Electric Vehicle (EV) “rapid charge” point per 10 residential dwellings and/or 1000 m<sup>2</sup> of commercial floorspace. Where on-site parking is provided for residential dwellings, EV charging points for each parking space should be made available;
- Where development generates significant additional traffic, provision of a detailed travel plan (with provision to measure its implementation and effect) which sets out measures to encourage sustainable means of transport (public, cycling and walking) via subsidised or free-ticketing, improved links to bus stops, improved infrastructure and layouts to improve accessibility and safety;
- All gas-fired boilers to meet a minimum standard of <40 mgNO<sub>x</sub>/kWh;
- Where emissions are likely to impact on an AQMA, all gas-fired CHP plant to meet a minimum emissions standard of:
  - Spark ignition engine: 250 mgNO<sub>x</sub>/Nm<sup>3</sup>;
  - Compression ignition engine: 400 mgNO<sub>x</sub>/Nm<sup>3</sup>;
  - Gas turbine: 50 mgNO<sub>x</sub>/Nm<sup>3</sup>.
- A presumption should be to use natural gas-fired installations. Where biomass is proposed within an urban area it is to meet minimum emissions standards of 275 mgNO<sub>x</sub>/Nm<sup>3</sup> and 25 mgPM/Nm<sup>3</sup>.

9.5. The guidance also outlines that offsetting emissions might be used as a mitigation measure for a proposed development. However, it states that:

*“It is important that obligations to include offsetting are proportional to the nature and scale of development proposed and the level of concern about air quality; such offsetting can be based on a quantification of the emissions associated with the development. These emissions can be assigned a value, based on the “damage cost approach” used by Defra, and then applied as an indicator of the level of offsetting required, or as a financial obligation on the developer. Unless some form of benchmarking is applied, it is impractical to include building emissions in this approach, but if the boiler and CHP emissions are consistent with the standards as described above then this is not essential”.*

9.6. The guidance offers a widely used approach for quantifying costs associated with pollutant emissions from transport. It also outlines the following typical measures that may be considered to offset emissions, stating that measures to offset emissions may also be applied as post assessment mitigation:

- Support and promotion of car clubs;
- Contributions to low emission vehicle refuelling infrastructure;
- Provision of incentives for the uptake of low emission vehicles;
- Financial support to low emission public transport options; and
- Improvements to cycling and walking infrastructures.

## Screening

### Impacts of the Local Area on the Development

*“There may be a requirement to carry out an air quality assessment for the impacts of the local area’s emissions on the proposed development itself, to assess the exposure that residents or users might experience. This will need to be a matter of judgement and should take into account:*

- *the background and future baseline air quality and whether this will be likely to approach or exceed the values set by air quality objectives;*
- *the presence and location of Air Quality Management Areas as an indicator of local hotspots where the air quality objectives may be exceeded;*
- *the presence of a heavily trafficked road, with emissions that could give rise to sufficiently high concentrations of pollutants (in particular nitrogen dioxide), that would cause unacceptably high exposure for users of the new development; and*
- *the presence of a source of odour and/or dust that may affect amenity for future occupants of the development”.*

### Impacts of the Development on the Local Area

9.7. The guidance sets out two stages of screening criteria that can be used to identify whether a detailed air quality assessment is required, in terms of the impact of the development on the local area. The first stage is that you should proceed to the second stage if any of the following apply:

- 10 or more residential units or a site area of more than 0.5 ha residential use; and/or
- more than 1,000 m<sup>2</sup> of floor space for all other uses or a site area greater than 1 ha.

9.8. Coupled with any of the following:

- the development has more than 10 parking spaces; and/or
- the development will have a centralised energy facility or other centralised combustion process.

9.9. If the above do not apply then the development can be screened out as not requiring a detailed air quality assessment of the impact of the development on the local area. If they do apply then you proceed to stage 2, which sets out indicative criteria for requiring an air quality assessment. The stage 2 criteria relating to vehicle emissions are set out below:

- the development will lead to a change in LDV flows of more than 100 AADT within or adjacent to an AQMA or more than 500 AADT elsewhere;
- the development will lead to a change in HDV flows of more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere;
- the development will lead to a realigning of roads (i.e. changing the proximity of receptors to traffic lanes) where the change is 5m or more and the road is within an AQMA;
- the development will introduce a new junction or remove an existing junction near to relevant receptors, and the junction will cause traffic to significantly change vehicle acceleration/deceleration, e.g. traffic lights or roundabouts;
- the development will introduce or change a bus station where bus flows will change by more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere;
- the development will have an underground car park with more than 100 movements per day (total in and out) with an extraction system that exhausts within 20 m of a relevant receptor; and

9.10. The criteria are more stringent where the traffic impacts may arise on roads where concentrations are close to the objective. The presence of an AQMA is taken to indicate the possibility of being close to the objective, but where whole authority AQMAs are present and it is known that the affected roads have concentrations below 90% of the objective, the less stringent criteria are likely to be more appropriate.

9.11. On combustion processes (including standby emergency generators and shipping) where there is a risk of impacts at relevant receptors, the guidance states that:

*“Typically, any combustion plant where the single or combined NO<sub>x</sub> emission rate is less than 5 mg/sec is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion. As a guide, the 5 mg/s criterion equates to a 450 kW ultra-low NO<sub>x</sub> gas boiler or a 30kW CHP unit operating at <95mg/Nm<sup>3</sup>.*

*In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings*

(including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates.

Conversely, where existing nitrogen dioxide concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable”.

- 9.12. Should none of the above apply then the development can be screened out as not requiring a detailed air quality assessment of the impact of the development on the local area, provided that professional judgement is applied; the guidance importantly states the following:

“The criteria provided are precautionary and should be treated as indicative. They are intended to function as a sensitive ‘trigger’ for initiating an assessment in cases where there is a possibility of significant effects arising on local air quality. This possibility will, self-evidently, not be realised in many cases. The criteria should not be applied rigidly; in some instances, it may be appropriate to amend them on the basis of professional judgement, bearing in mind that the objective is to identify situations where there is a possibility of a significant effect on local air quality”.

- 9.13. Even if a development cannot be screened out, the guidance is clear that a detailed assessment is not necessarily required:

“The use of a Simple Assessment may be appropriate, where it will clearly suffice for the purposes of reaching a conclusion on the significance of effects on local air quality. The principle underlying this guidance is that any assessment should provide enough evidence that will lead to a sound conclusion on the presence, or otherwise, of a significant effect on local air quality. A Simple Assessment will be appropriate, if it can provide this evidence. Similarly, it may be possible to conduct a quantitative assessment that does not require the use of a dispersion model run on a computer”.

- 9.14. The guidance also outlines what the content of the air quality assessment should include, and this has been adhered to in the production of this chapter.

### Impact Descriptors and Assessment of Significance

- 9.15. There is no official guidance in the UK in relation to development control on how to describe the nature of air quality impacts, nor how to assess their significance. The approach within the EPUK/IAQM guidance has, therefore, been used in this assessment. This approach involves a two stage process:

- a qualitative or quantitative description of the impacts on local air quality arising from the development; and
- a judgement on the overall significance of the effects of any impacts.

### Impact Descriptors

- 9.16. Impact description involves expressing the magnitude of incremental change as a proportion of a relevant assessment level and then examining this change in the context of the new total concentration and its relationship with the assessment criterion. Table 9.1.7 sets out the method for determining the impact descriptor for annual mean concentrations at individual receptors, having been adapted from the table presented in the guidance document. For the assessment criterion the term Air Quality Assessment Level or AQAL has been adopted, as it covers all pollutants, i.e. those with and without formal standards. Typically, as is the case for this assessment, the AQAL will be the air quality objective value. Note that impacts may be adverse or beneficial, depending on whether the change in concentration is positive or negative.

**Table 9.1.7: Air Quality Impact Descriptors for Individual Receptors for All Pollutants <sup>a</sup>**

Long-Term Average Concentration At Receptor In Assessment Year <sup>b</sup>	Change in concentration relative to AQAL <sup>c</sup>				
	0%	1%	2-5%	6-10%	>10%
75% or less of AQAL	Negligible	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Negligible	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Negligible	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Negligible	Moderate	Substantial	Substantial	Substantial

<sup>a</sup> Values are rounded to the nearest whole number.

<sup>b</sup> This is the ‘without scheme’ concentration where there is a decrease in pollutant concentration and the ‘with scheme’ concentration where there is an increase.

<sup>c</sup> AQAL = Air Quality Assessment Level, which may be an air quality objective, EU limit or target value, or an Environment Agency ‘Environmental Assessment Level (EAL)’.

### Assessment of Significance

- 9.17. The guidance recommends that the assessment of significance should be based on professional judgement, with the overall air quality impact of the scheme described as either ‘significant’ or ‘not significant’. In drawing this conclusion, the following factors should be taken into account:

- the existing and future air quality in the absence of the development;
- the extent of current and future population exposure to the impacts;
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts;
- the potential for cumulative impacts and, in such circumstances, several impacts that are described as ‘slight’ individually could, taken together, be regarded as having a significant effect for the purposes of air quality management in an area, especially where it is proving difficult to reduce concentrations of a pollutant. Conversely, a ‘moderate’ or ‘substantial’

impact may not have a significant effect if it is confined to a very small area and where it is not obviously the cause of harm to human health; and

- the judgement on significance relates to the consequences of the impacts; will they have an effect on human health that could be considered as significant? In the majority of cases, the impacts from an individual development will be insufficiently large to result in measurable changes in health outcomes that could be regarded as significant by health care professionals.

- 9.18. The guidance is clear that other factors may be relevant in individual cases. It also states that the effect on the residents of any new development where the air quality is such that an air quality objective is not met will be judged as significant. For people working at new developments in this situation, the same will not be true as occupational exposure standards are different, although any assessment may wish to draw attention to the undesirability of the exposure.
- 9.19. A judgement of the significance should be made by a competent professional who is suitably qualified. A summary of the professional experience of the staff contributing to this assessment is provided in Appendix 0.

# ES Volume II: Technical Appendices

## Appendix 9.5: Professional Experience

## 9.5. Professional Experience

### Stephen Moorcroft, BSc (Hons) MSc DIC MEnvSc MIAQM CEnv

Mr Moorcroft is a Director of Air Quality Consultants, and has worked for the company since 2004. He has over thirty-five years' postgraduate experience in environmental sciences. Prior to joining Air Quality Consultants, he was the Managing Director of Casella Stanger, with responsibility for a business employing over 100 staff and a turnover of £12 million. He also acted as the Business Director for Air Quality services, with direct responsibility for a number of major Government projects. He has considerable project management experience associated with Environmental Assessments in relation to a variety of development projects, including power stations, incinerators, road developments and airports, with particular experience related to air quality assessment, monitoring and analysis. He has contributed to the development of air quality management in the UK, and has been closely involved with the LAQM process since its inception. He has given expert evidence to numerous public inquiries, and is frequently invited to present to conferences and seminars. He is a Member of the Institute of Air Quality Management.

### Chris Whall, BSc (Hons) MSc CEnv MEnvSc MIAQM

Mr Whall is a Director of Air Quality Consultants. He has 18 years' experience in environmental consulting with multi-sector EIA experience and technical expertise in air quality and emissions management, emissions quantification, ambient air quality monitoring and impact assessment. Mr Whall's work has included the provision of air quality advice and the delivery of impact assessments for UK and international developments including airports, road, rail, power stations, energy from waste, mining and other major regeneration schemes. He has contributed to the air quality components of major Environmental Statements for airports including Heathrow, Gatwick and Stansted in the UK and has provided strategic air quality advice to the European Investment Bank in relation to international airport expansion. Mr Whall also provided overall technical direction to the air quality team delivering the Environmental Statements for the Hinkley Point C nuclear power station Development Consent Order (DCO), on behalf of EDF Energy. Recently Mr Whall led the air quality assessment to support the ending of the Cranford Agreement at Heathrow Airport to introduce full runway alternation during easterly operation; he appeared as an Expert Witness on behalf of Heathrow Airport Limited at the Public Inquiry in 2015. For several years Mr Whall has been working with Heathrow Airport Limited in the development of its masterplan for a third runway and he led Heathrow's air quality submissions to the Airports Commission.

### Pauline Jezequel, MSc MEnvSc AMIAQM

Miss Jezequel is a Senior Consultant with AQC with seven years' relevant experience. Prior to joining AQC she worked as an air quality consultant at AECOM. She has also worked as an air quality controller at Bureau Veritas in France, undertaking a wide range of ambient and indoor air

quality measurements for audit purposes. She now works in the field of air quality assessment, undertaking air quality impact assessments for a wide range of development projects in the UK and abroad, including for residential and commercial developments, transport schemes (rail, road and airport), waste facilities and industrial sites. Miss Jezequel has also undertaken a number of odour surveys and assessments in the context of planning applications. She has experience in monitoring construction dust, as well as indoor pollutant levels for BREEAM purposes.

Full CVs are available at [www.aqconsultants.co.uk](http://www.aqconsultants.co.uk).

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## Appendix 9.6: Modelling Methodology

## 9.6. Modelling Methodology

### Model Inputs

- 9.1. Predictions have been carried out using the ADMS-Roads dispersion model (v4.0). The model requires the user to provide various input data, including emissions from each section of road, and the road characteristics (including road width, street canyon width, street canyon height and porosity, where applicable). Vehicle emissions have been calculated based on vehicle flow, composition and speed data using the EFT (Version 7.0) published by Defra<sup>12</sup>.
- 9.2. Hourly sequential meteorological data from Benson for 2015 have been used in the model. The Benson meteorological monitoring station is located at Benson Airfield, approximately 30 km to the south of the proposed development site. It is deemed to be the nearest monitoring station representative of meteorological conditions in the vicinity of the proposed development site; both the development site and the Benson meteorological monitoring station are located in the southeast of England where they will be influenced by the effects of inland meteorology over flat-lying topography.
- 9.3. For the purposes of modelling, it has been assumed that most of Kings End and Queens Avenue form a street canyon. These roads have a number of canyon-like features, which reduce dispersion of traffic emissions, and can lead to concentrations of pollutants being higher here than they would be in areas with greater dispersion. Kings End and Queens Avenue have, therefore, been modelled as a street canyon(s) using ADMS-Roads' advanced canyon module, with appropriate input parameters determined from local mapping and photographs. The advanced canyon module has been used along with the urban canopy flow module, the input data for which have been published by Cambridge Environmental Research Consultants<sup>13</sup>, who developed the ADMS models.
- 9.4. AADT flows, speeds, and vehicle fleet composition data have been provided by Motion, who have undertaken the transport assessment work for the proposed development. These have been derived from weekday counts, which may over-predict annual average flows. The 2017 AADT flows have been factored backwards to the assessment year of 2015 using growth factors derived using the TEMPro System v7.0<sup>14</sup>. Traffic speeds have been based on those provide by the transport consultant, with some having been adjusted based on professional judgement, taking account of the road layout, speed limits and the proximity to a junction. The traffic data used in this assessment are summarised in Table 9.1.8. Diurnal flow profiles for the traffic have been derived from the national diurnal profiles published by DfT<sup>15</sup>.

<sup>12</sup> Defra (2017) Defra Air Quality Website, [Online], Available: <http://laqm.defra.gov.uk/>.

<sup>13</sup> CERC (2016) London Urban Canopy Data, [Online], Available: <http://www.cerc.co.uk/IJARSG2016>.

<sup>14</sup> DfT (2016) TEMPro (Version 7.0) Software, [Online], Available: <https://www.gov.uk/government/collections/tempro>.

<sup>15</sup> DfT (2015) DfT Automatic traffic Counters Table TRA0305-0307, [Online], Available: <https://www.gov.uk/government/statistical-data-sets/tra03-motor-vehicle-flow>.

Table 9.1.8: Summary of Traffic Data used in the Assessment (AADT Flows)

Road Link	2015		2026 (Without Scheme but with Cumulative Schemes )		2026 (With Scheme and Cumulative Schemes)	
	AADT	%HDV	AADT	%HDV	AADT	%HDV
Kings end	20820	0.7	26469	0.7	29802	0.6
Pingle Drive	4705	0.3	6234	0.3	6234	0.3
A41 East	23198	3.9	33369	3.3	34721	3.1
Oxford Rd N of Lakeview Drive	32573	4.5	45694	3.9	50357	3.5
Lakeview Drive	12516	0.4	15239	0.4	21610	0.3
Oxford Rd S of Lakeview Drive	30227	5.0	42839	4.3	44743	4.1
Saxon fields	2367	0.0	2882	0.0	2882	0.0

- 9.5. Figure 9.1.1 shows the road network included within the model and defines the study area.

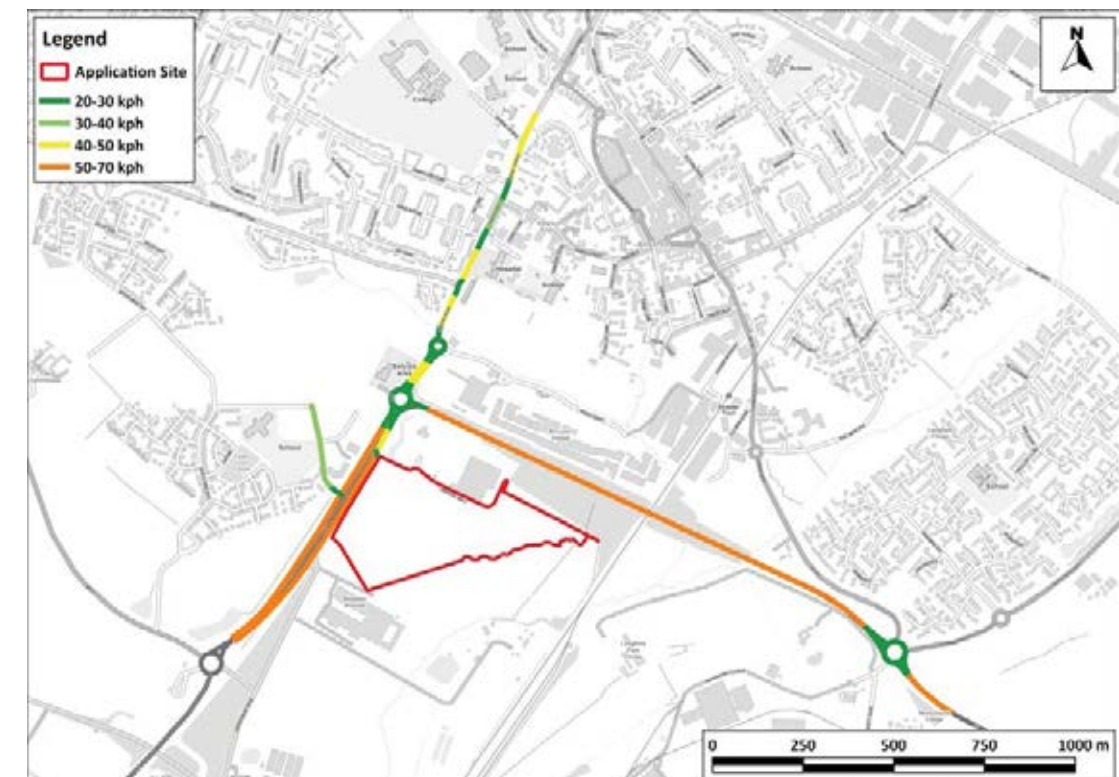


Figure 9.1.1: Modelled Road Network and Speeds

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### Sensitivity Test for Nitrogen Oxides and Nitrogen Dioxide

- 9.6. As explained in the ES chapter, AQC has carried out a detailed analysis which showed that, where previous standards had limited on-road success in reducing nitrogen oxides emissions from diesel vehicles, the 'Euro VI' and 'Euro 6' standards are delivering real on-road improvements<sup>16</sup>. Furthermore, these improvements are expected to increase as the Euro 6 standard is fully implemented. Despite this, the detailed analysis suggested that, in addition to modelling using the EFT (V7.0), a sensitivity test using elevated nitrogen oxides emissions from certain diesel vehicles should be carried out<sup>16</sup>. A worst-case sensitivity test has thus been carried out by applying the adjustments set out in Table 9.1.9 to the emission factors used within the EFT<sup>17</sup>, using AQC's CURED (V2A) tool<sup>18</sup>. The justifications for these adjustments are given in AQC<sup>16</sup>. Results are thus presented for two scenarios: first the 'official prediction', which uses the EFT with no adjustment, and second the 'worst-case sensitivity test', which applies the adjustments set out in Table 9.1.9. The results from this sensitivity test are likely to over-predict emissions from vehicles in the future and thus provide a reasonable worst-case upper-bound to the assessment.

**Table 9.1.9: Summary of Adjustments Made to Defra's EFT (V7.0)**

Vehicle Type		Adjustment Applied to Emission Factors
All Petrol Vehicles		No adjustment
Light Duty Diesel Vehicles	Euro 5 and earlier	No adjustment
	Euro 6	Increased by 78%
Heavy Duty Diesel Vehicles	Euro III and earlier	No adjustment
	Euro IV and V	Set to equal Euro III values
	Euro VI	Set to equal 20% of Euro III emissions <sup>a</sup>

<sup>a</sup> Taking account of the speed-emission curves for different Euro classes as explained in AQC (2016b).

### Background Concentrations

- 9.7. The background pollutant concentrations across the study area have been defined using the national pollution maps published by Defra<sup>12</sup>. These cover the whole country on a 1x1 km grid and are published for each year from 2013 until 2030.

<sup>16</sup> AQC (2016) Emissions of Nitrogen Oxides from Modern Diesel Vehicles, [Online], Available: <http://www.aqconsultants.co.uk/getattachment/Resources/Download-Reports/Emissions-of-Nitrogen-Oxides-from-Modern-Diesel-Vehicles-210116.pdf.aspx>.

<sup>17</sup> All adjustments were applied to the COPERT functions. Fleet compositions etc. were applied following the same methodology as used within the EFT.

<sup>18</sup> AQC (2016) CURED V2A, [Online], Available: <http://www.aqconsultants.co.uk/getattachment/Resources/Download-Reports/CURED-V2A.zip.aspx>.

### Background NO<sub>2</sub> Concentrations for Sensitivity Test

- 9.8. The road-traffic components of nitrogen dioxide in the background maps have been uplifted in order to derive future year background nitrogen dioxide concentrations for use in the sensitivity test. Details of the approach are provided in the report prepared by AQC<sup>18</sup>.

### Model Verification

- 9.9. In order to ensure that ADMS-Roads accurately predicts local concentrations, it is necessary to verify the model against local measurements.

### Nitrogen Dioxide

- 9.10. Most nitrogen dioxide (NO<sub>2</sub>) is produced in the atmosphere by reaction of nitric oxide (NO) with ozone. It is therefore most appropriate to verify the model in terms of primary pollutant emissions of nitrogen oxides (NO<sub>x</sub> = NO + NO<sub>2</sub>). The model has been run to predict the annual mean NO<sub>x</sub> concentrations during 2015 at the Queens Avenue and Kings End South diffusion tube monitoring sites. Concentrations have been modelled at 2.0 m, the height of the monitors.
- 9.11. The model output of road-NO<sub>x</sub> (i.e. the component of total NO<sub>x</sub> coming from road traffic) has been compared with the 'measured' road-NO<sub>x</sub>. Measured road-NO<sub>x</sub> has been calculated from the measured NO<sub>2</sub> concentrations and the predicted background NO<sub>2</sub> concentration using the NO<sub>x</sub> from NO<sub>2</sub> calculator (Version 5.1) available on the Defra LAQM Support website<sup>12</sup>.
- 9.12. An adjustment factor has been determined as the slope of the best-fit line between the 'measured' road contribution and the model derived road contribution, forced through zero (Figure 9.1.2). The calculated adjustment factor of 2.8019 has been applied to the modelled road-NO<sub>x</sub> concentration for each receptor to provide adjusted modelled road-NO<sub>x</sub> concentrations.
- 9.13. The total nitrogen dioxide concentrations have then been determined by combining the adjusted modelled road-NO<sub>x</sub> concentrations with the predicted background NO<sub>2</sub> concentration within the NO<sub>x</sub> to NO<sub>2</sub> calculator. Figure 9.1.3 compares final adjusted modelled total NO<sub>2</sub> at each of the monitoring sites to measured total NO<sub>2</sub>, and shows a close agreement.
- 9.14. The results imply that the model has under predicted the road-NO<sub>x</sub> contribution. This is a common experience with this and most other road traffic emissions dispersion models.

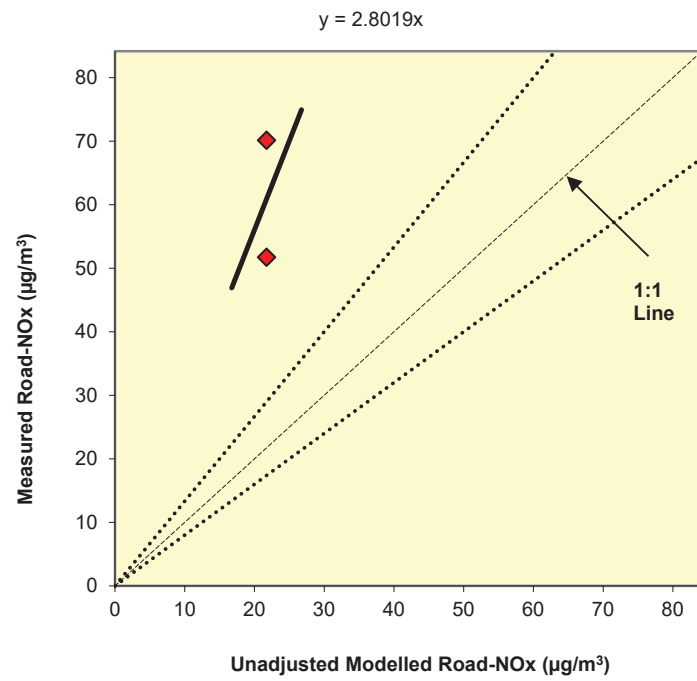


Figure 9.1.2: Comparison of Measured Road NOx to Unadjusted Modelled Road NOx Concentrations. The dashed lines show ± 25%.

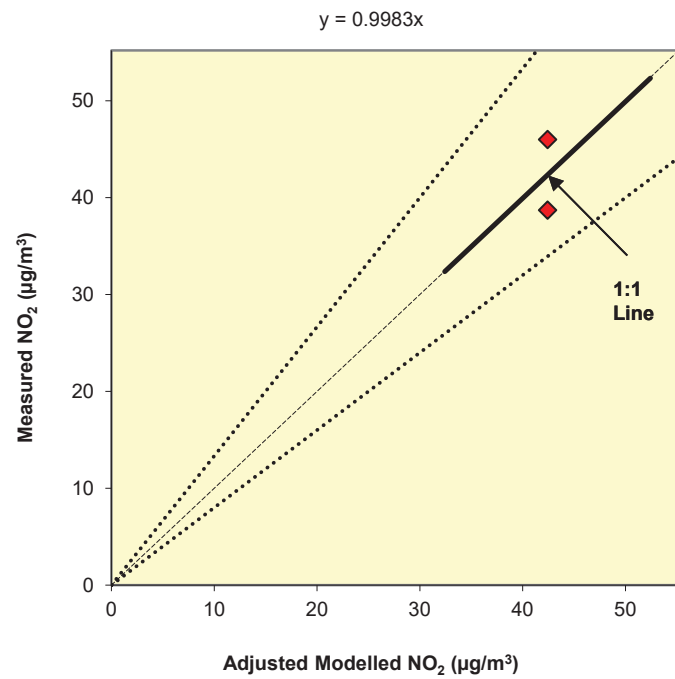


Figure 9.1.3: Comparison of Measured Total NO<sub>2</sub> to Final Adjusted Modelled Total NO<sub>2</sub> Concentrations. The dashed lines show ± 25%.

**Model Verification for NOx and NO<sub>2</sub> Sensitivity Test**

9.15. The approach set out above has been repeated using the predicted road-NOx and background concentrations specific to the sensitivity test. This has resulted in an adjustment factor of 2.6822, which has been applied to all modelled road-NOx concentrations within the sensitivity test.

**Model Post-processing**

9.16. The model predicts road-NOx concentrations at each receptor location. These concentrations have been adjusted using the adjustment factor set out above, which, along with the background NO<sub>2</sub>, has been processed through the NOx to NO<sub>2</sub> calculator available on the Defra LAQM Support website<sup>12</sup>. The traffic mix within the calculator has been set to “All other urban UK traffic”, which is considered suitable for the study area. The calculator predicts the component of NO<sub>2</sub> based on the adjusted road-NOx and the background NO<sub>2</sub>.

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## Appendix 9.7: Construction Mitigation

## 9.7. Construction Mitigation

9.1. The following is a set of measures that should be incorporated into the specification for the works:

### Communications

- display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environmental manager/engineer or the site manager; and
- display the head or regional office contact information.

### Dust Management Plan

- Develop and implement a Dust Management Plan (DMP) approved by the Local Authority which documents the mitigation measures to be applied, and the procedures for their implementation and management.

### Site Management

- 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;
- make the complaints log available to the local authority when asked; and
- record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.

### Monitoring

- Undertake daily on-site and off-site inspections where receptors (including roads) are nearby, to monitor dust. Record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of the site boundary, with cleaning to be provided if necessary;
- carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority when asked; and
- increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

### Preparing and Maintaining the Site

- Plan the site layout so that machinery and dust-causing activities are located away from receptors, as far as is possible;
- erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- avoid site runoff of water or mud;
- keep site fencing, barriers and scaffolding clean using wet methods;
- remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; and
- cover, seed, or fence stockpiles to prevent wind whipping.

### Operating Vehicle/Machinery and Sustainable Travel

- Ensure all vehicles switch off their engines when stationary – no idling vehicles;
- avoid the use of diesel- or petrol-powered generators and use mains electricity or battery-powered equipment where practicable; and
- impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).

### Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems;
- ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;
- use enclosed chutes, conveyors and covered skips;
- minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

## Waste Management

- Avoid bonfires and burning of waste materials.

## Measures Specific to Construction

- Avoid scabbling (roughening of concrete surfaces), if possible; and
- ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

## Measures Specific to Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use;
- avoid dry sweeping of large areas;
- ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
- record all inspections of haul routes and any subsequent action in a site log book;
- install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems or mobile water bowsers, and regularly cleaned;
- implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable);
- ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; and
- access gates should be located at least 10 m from receptors, where possible.

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## Appendix 10.1: Site Gazetteer

# Site Gazetteer



<b>Site Number</b>	1
<b>Site Name</b>	Akeman Street (west section)
<b>Type of Site</b>	Street
<b>NMRS Number</b>	
<b>HER Number</b>	8921
<b>Status</b>	Non-designated
<b>Easting</b>	456790
<b>Northing</b>	221062
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Margary Road 16b; section of road from Alchester to Cirencester. See also PRN 8920.</p> <p>(4) Presence of road shown up by its roadside ditches exposed in a pipe trench</p> <p>(5) Gas pipeline trench in 1972 showed little evidence for a metalled surface or side ditches</p> <p>(6) Slight agger 5m wide parallel to and 10m south of present Chesterton Lane. Rough stone cobble surface 0.1m thick and 2-5m wide below turf line. Laid in natural subsoil. Undated. Exposed at SP 5485 2105. Confirmed by pipeline trench and testing assoc with M40.</p> <p>(7) Watching brief prior to housing development revealed section of Akeman Street, buried 0.6m below present ground level. Possible ditch located on south side, now found on north side. No Roman artefacts recovered</p> <p>(8) At SP 550 211, construction of a road bridge for Chesterton Lane revealed layers of metalling of Akeman Street, lying 5.1m below the surface</p> <p>(9) Fabric of Akeman Street was located, 6.5m wide and up to 0.51m thick</p> <p>(10) Account of excavation of Akeman Street in trial trench. Akeman St located 2km W of Alchester; known to lie beneath Chesterton Lane. Partly sectioned by bridge foundation. Pottery found on surface. Roadside ditches not visible, but metalled surface (made up of brashy subsoil quarried from roadside ditches) was. Road appears to have been patched and once remetalled.</p> <p>11) A length of the Road was fieldwalked in 2004 ahead of a pipeline. No significant scatters were located.</p> <p>12) During groundworks prior to erection of new dance studio. WB identified 2 cut features, interpreted as roadside ditches, as well as discrete pit with abundant finds.</p> <p>13) A Watching Brief carried out ahead of the construction of a new building and access. The site was evaluated in 1996 and located a Roman trackway. A ditch relating to this trackway was recorded in this watching brief as well as a modern farmyard surface.</p> <p>15) Portions of road's course survive in hedgerow alignments and under fields. Akeman Street crosses the A40 in the vicinity of the grade-separated interchange.</p> <p>16) Same information in 3rd edition as 1st edition on section of road in Oxfordshire.</p> <p>17) A small undated ditch was recorded on the N side of the road during a WB on the western side of Ramsden. Aligned with the road and containing a pebble fill which may be the eroded metalled surface.</p> <p>18) Draft publication report for Oxo.</p> <p>19) See for information in DRF (SP31NE) related to possible Roman road connecting to Akeman St, running through Finstock.</p> <p>20) Photo transferred to Oxon History Centre.</p> <p>21) WB was successful in establishing the alignment of the Roman road and its excellent state of preservation.</p> <p>22) Section of Roman road was mapped as part of this NMP project; it is visible as cropmark and slight earthwork. Road is located W of Bembury Lodge Plantation between SP 2085 0761 and SP 2117 0771, and is defined as a linear cropmark and slight earthwork of the buried metalled road which measures approx 7m in width. The road follows the alignment of field boundaries to the E and then continues along the road line. (data from NMP SP 20 NW 39 long listing).</p> <p>&lt;1&gt; I D Margary, 1957, Roman Roads in Britain, pp.144-147 (Bibliographic reference). SOX747.</p> <p>&lt;2&gt; Archaeological Journal, Vol 9, p.30; Vol 6 (1926) pp.43-53 (Serial). SOX443.</p>

# Site Gazetteer



<b>Site Number</b>	2
<b>Site Name</b>	No 8 Including Former Magistrate's Courthouse, Church Street
<b>Type of Site</b>	Listed Building
<b>NMRS Number</b>	
<b>HER Number</b>	16161
<b>Status</b>	Listed Building- Grade II

<3> Oxford Architectural & Historical Society, Oxoniensia, Vol 7 (1942) p.109 (Serial). SOX284.

<4> Field Notes/Field Visit, R A Chambers, 30.4.80. See DRF under PRN 12384 (Unpublished document). SOX261.

<5> Oxford Architectural & Historical Society, Oxoniensia, Vol XLIII (1978) p.48. Archaeology of Charlbury to Arncott Gas Pipeline (Serial). SOX284.

<6> Oxford Architectural & Historical Society, Oxoniensia, Vol 57 (1992) p.51. Archaeology of the M40 (Serial). SOX284.

<7> Oxford Archaeological Unit, 1993, Watching brief at Green Lane, Chesterton (Unpublished document). SOX851.

<8> Britannia, Vol XXI (1990) p.334. See CAS Lib: Vale 41 (Serial). SOX282.

<9> Britannia, Vol XXVI (1995) p.355 (Serial). SOX282.

<10> General reference, Oxon Arch Society Report, 1937, No 83, pp.23-30. 'Excavations at Chesterton Lane, Alchester' (Bibliographic reference). SOX373.

<11> CBA South Midlands Group, South Midlands Archaeology, CBA9 (1973) pp.18-19 (Serial). SOX5.

<11> Cotswold Archaeology, 2004, Angelinos Pumping Station to Ardley Reservoir Mains Reinforcement, Oxfordshire: Archaeological Fieldwalking Survey (Unpublished document). SOX1470.

<12> Oxford Archaeological Unit, 1998, The Oxford School of Drama, Sansome's Farm, Woodstock, Oxfordshire: Archaeological Watching Brief (Unpublished document). SOX1226.

<13> Oxford Archaeology, 2006, Oxford School Of Drama, Woodstock: An Archaeological Watching Brief (Unpublished document). SOX1782.

<14> Lang Hall Archaeological Consultancy, 2004, LINEAR Angelinos Pumping Station to Ardley Reservoir Mains Reinforcement, Oxfordshire: An Assessment of the Archaeological Implications, Listed in DBA (Unpublished document). SOX1930.

<15> Cotswold Archaeological Trust, 1993, A40 Witney Bypass to Sturt Farm Improvement: Archaeological Survey, p 10 (Unpublished document). SOX1950.

<16> I D Margary, 1973, Roman Roads in Britain, 3rd edition, pp 158-162 (Monograph). SOX1977.

<17> John Moore Heritage Services, 2009, An Archaeological Watching Brief on Land West of Jordans Close, Ramsden, Oxfordshire (Unpublished document). SOX2218.

<18> Cotswold Archaeology, 2009, Angelinos Pumping Station to Ardley Reservoir, Oxfordshire: Draft Publication Report (Unpublished document). SOX2330.

<19> Additional Information in Detailed Record File, typed note, 1974 (Index). SOX258.

<20> Photographic Archive, cutting across avenue at Blenheim (Photograph). SOX304.

<21> John Moore Heritage Services, 2011, Land at Blenheim Park, Woodstock, Oxfordshire: Archaeological Watching Brief (Unpublished document). SOX2755.

<22> Gloucestershire County Council, 2009, South Cotswolds National Mapping Programme (Digital archive). SOX2926.

<b>Site Number</b>	2
<b>Site Name</b>	No 8 Including Former Magistrate's Courthouse, Church Street
<b>Type of Site</b>	Listed Building
<b>NMRS Number</b>	
<b>HER Number</b>	16161
<b>Status</b>	Listed Building- Grade II

## Site Gazetteer



<b>Easting</b>	458300
<b>Northing</b>	222330
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Former police station and courthouse. 1857 on datestone but courthouse is probably of later construction.</p> <p>COURT HOUSE (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING</p> <p>POLICE STATION (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING</p> <p>SP5822S BICESTER CHURCH STREET (North side)</p> <p>3/18 No 8 including former 22/07/76 Magistrates Courthouse (Formerly listed as No 8 (Magistrate's Courthouse and County Police)) GV II</p> <p>Former police station and courthouse. 1857 on datestone; courthouse probably later. Coursed squared limestone with ashlar dressings and brick; Welsh-slate roofs with stone stacks. L-shaped group. 2-storey police station has a 4-window front, the gabled right bay with a 4-pane segmental-headed sash above a segmental-arched carriage entrance; other bays have similar but larger sashes to each floor, and between bays one and 2 is a segmental-arched doorway with overlight. Doorway and carriage entry retain studded doors. A simple stone cornice conceals the eaves gutter, and the front gable contains a plaque inscribed "COUNTY/POLICE/1857". Rear is stone with brick dressings. Gable-fronted single-storey courthouse, to right, is linked by a short range containing a large doorway and a window, both in chamfered stone surrounds. Gabled section contains a pair of tall 18-pane sashes with similar surrounds and relieving arches, and there is a round opening in the gable. Gable parapet has gabled kneelers. Long brick-fronted wing to rear of courtroom retains two 20-pane sashes and some other original openings, but is much altered and was raised to 2 storeys, probably in early C20. Interiors not inspected. (V.C.H.: Oxfordshire, Vol.VI, p.19). Listing NGR: SP5830922332 (2) Record of buildings before conversion work, with a brief account of their use. Plans, photographs and key to their locations. The buildings has been empty for some years &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/18, p.8 (Index). SOX260. &lt;2&gt; Alison Maguire, 1998, Building survey of the Courthouse and County Police buildings, Bicester (Unpublished document). SOX834.</p>

<b>Site Number</b>	3
<b>Site Name</b>	Roman Road
<b>Type of Site</b>	Road
<b>NMRS Number</b>	
<b>HER Number</b>	8922

## Site Gazetteer



<b>Status</b>	Non-designated
<b>Easting</b>	458092
<b>Northing</b>	222603
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Margary Road 160a; section of Alchester to Towcester road. ROAD (Roman - 43 AD to 409 AD) Evidence MODIFIED SURFACE</p> <p>1) Clearly visible as wide agger through centre of Alchester, raised about 2' and much spread (up to 80') by ploughing. 2) Excavations at SP 6385 3245 failed to establish the location of the Roman road or any roadside ditches or structures 3) Scored as R/B road for MPP 4) No additional information from 3rd edition (ie, exactly the same data as 1st ed)</p> <p>&lt;1&gt; I D Margary, 1957, Roman Roads in Britain, pp.148/9. (Bibliographic reference). SOX747. &lt;2&gt; AOC Archaeology Group, 1998, An Archaeological Excavation and Watching Brief on the line of the Finmere B4031 diversion, Oxfordshire (FDIV 97) (Unpublished document). SOX874. &lt;3&gt; MPP Documents for Oxfordshire, S Lisk, 6.7.93 (Index). SOX259. &lt;4&gt; I D Margary, 1973, Roman Roads in Britain, 3rd edition, pp 163-4 (see DRF) (Monograph). SOX1977.</p>

<b>Site Number</b>	4
<b>Site Name</b>	Akeman Street (east section)
<b>Type of Site</b>	Road
<b>NMRS Number</b>	
<b>HER Number</b>	8920
<b>Status</b>	Non-designated
<b>Easting</b>	458541
<b>Northing</b>	220603
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Margary Road 16a; section of road from Alchester to Verulanium. See also PRN 8921. ROAD (Roman - 43 AD to 409 AD) Evidence MODIFIED SURFACE</p> <p>3) Classified as R/B road for MPP. 4) Building plot at Wendlebury Holt (SP 576 203) lies on the line of this road, but no evidence for road was visible after site clearance. 6) Same information for Oxfordshire section (ie, no change between 1st and 3rd editions). 7) Site considered for assessment under MPP by S Weaver in 1999-2000; site not visited or assessed further.</p> <p>&lt;1&gt; I D Margary, 1957, Roman Roads in Britain, pp.142-4 (Bibliographic reference). SOX747. &lt;2&gt; Oxford Architectural &amp; Historical Society, Oxoniensia, Vol VI (1941) p.84 (Serial). SOX284. &lt;3&gt; MPP Documents for Oxfordshire, S Lisk (Index). SOX259. &lt;4&gt; CBA South Midlands Group, South Midlands Archaeology, Vol 21 (1991) p.102. R A Chambers (Serial). SOX5. &lt;5&gt; Lang Hall Archaeological Consultancy, 2004, LINEAR Angelinos Pumping Station to Ardley Reservoir Mains Reinforcement, Oxfordshire: An Assessment of the Archaeological Implications, Listed in DBA (Unpublished document). SOX1930.</p>



## Site Gazeteer



<6> I D Margary, 1973, Roman Roads in Britain, 3rd edition (Monograph). SOX1977.  
<7> MPP Documents for Oxfordshire, File by S Weaver; now discarded (Index). SOX259.

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<b>Site Number</b>	5
<b>Site Name</b>	No 17, The Causeway
<b>Type of Site</b>	Building
<b>NMRS Number</b>	
<b>HER Number</b>	16212
<b>Status</b>	Non-designated
<b>Easting</b>	458410
<b>Northing</b>	222280
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Prior to demolition for the construction of 24 flats, the building was recorded. BUILDING (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING 1) Building of brick and timber. Its gables consist of the walls of neighbouring buildings. The south part of the cottage is dated to 1886. 2) Site lies between 2 areas of Saxon settlement which later became the medieval centres of King's End and Market End. The Causeway links these 2 centres and is c.14th in date &lt;1&gt; John Moore Heritage Services, 1999, Building investigation at 17 Causeway and Vine Cottages, Bicester (Unpublished document). SOX833. &lt;2&gt; CBA South Midlands Group, South Midlands Archaeology, Vol 30 (2000) p.46. Imogen Grundon (Serial). SOX5.</p>

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<b>Site Number</b>	6
<b>Site Name</b>	Middle Iron Age to Roman Settlement (A421 crossroads at Chesterton Lane)
<b>Type of Site</b>	Settlement
<b>NMRS Number</b>	
<b>HER Number</b>	16214
<b>Status</b>	Non-designated
<b>Easting</b>	457130
<b>Northing</b>	220940
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Sites B &amp; C (Main excavation area). Mainly MIA, but also Roman ditch and nearby cemetery. C5-8 Anglo-Saxon pottery found in two areas, as well as earlier material. SETTLEMENT (Middle Iron Age - 400 BC to 101 BC) Evidence FIND Evidence SUB SURFACE DEPOSIT BOUNDARY DITCH (Roman - 43 AD to 409 AD) BUILDING (Roman - 43 AD to 409 AD) Evidence DEMOLISHED BUILDING CORN DRYING OVEN (Roman - 43 AD to 409 AD)</p>

## Site Gazeteer



Evidence DEMOLISHED BUILDING  
DITCH (Roman - 43 AD to 409 AD)  
INHUMATION CEMETERY (Roman - 43 AD to 409 AD)  
INHUMATION CEMETERY (Roman - 43 AD to 409 AD)  
Evidence FIND  
STRUCTURE (Roman - 43 AD to 409 AD)  
TRACKWAY (Roman - 43 AD to 409 AD)  
1) Excavations have revealed Middle Iron Age gullies, postholes and sub-rectangular enclosures indicating settlement, truncating these deposits is early Roman ditch running parallel with Akeman St. Also structures of both agricultural and domestic nature. A Romano-British cemetery is situated nearby. Anglo-Saxon pottery was also found in two areas dating from the 5th to the 8th centuries  
3) Small assemblage of Neolithic and Bronze Age artefacts.  
5) Monograph on excavations in northern extramural area of the town, c 500m N of its defences and close to the line of Akeman Street. The excavations have produced Neolithic/Bronze Age flintwork, residual Beaker material and evidence for MIA settlement, extensive activity throughout the Roman period and for post Roman burials. Smaller scale work elsewhere on the road scheme uncovered a BA burial, LIA to early Roman settlement, and elements of the field systems relating to the Roman town.  
<1> General reference, P M Booth, J Evan, J Hiller: Excavations in the Extramural Settlement of Roman Alchester, Oxon,1991 (Bibliographic reference). SOX373.  
<2> Additional Information in Detailed Record File, Chapter 10 from above publication (Index). SOX258.  
<3> Additional Information in Detailed Record File, Chapter 6 from above publication (Index). SOX258.  
<4> Oxford Archaeological Unit, 1991, A421 Wendlebury-Bicester Dualling: Post Excavation Assessment and Updated Project Design (Unpublished document). SOX2574.  
<5> Oxford Archaeological Unit, 2002, Excavations in the Extramural Settlement of Roman Alchester (Monograph). SOX1712.  
<6> OAU Newsletter, Arch News vol xvii no 4 December 1989 pp.13-15 (Article in serial). SOX270.

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<b>Site Number</b>	7
<b>Site Name</b>	Iron Age Settlement (A421 near crossroads at Chesterton Lane)
<b>Type of Site</b>	Settlement
<b>NMRS Number</b>	
<b>HER Number</b>	16215
<b>Status</b>	Non-designated
<b>Easting</b>	457350
<b>Northing</b>	221300
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Site D. Located at northern edge of main settlement GULLY (Middle Iron Age to Late Iron Age - 400 BC to 42 AD) Evidence FIND Evidence SUB SURFACE DEPOSIT SETTLEMENT (Late Iron Age - 100 BC to 42 AD) Evidence FIND Evidence SUB SURFACE DEPOSIT 1) Excavations have revealed Late iron age gullies and curving gullies indicating the presence of structures in addition to an amount of Belgic pottery. Seems to be intense use of area at edge</p>

of main occupation. Undated enclosures may date to MIA.  
 3) Monograph on excavations in northern extramural area of the town, c 500m N of its defences and close to the line of Akeman Street. The excavations have produced Neolithic/Bronze Age flintwork, residual Beaker material and evidence for MIA settlement, extensive activity throughout the Roman period and for post Roman burials. Smaller scale work elsewhere on the road scheme uncovered a BA burial, LIA to early Roman settlement, and elements of the field systems relating to the Roman town  
 <1> Oxford Archaeological Unit, 2002, Excavations in the Extramural Settlement of Roman Alchester, Copy in DRF (Chapter 10) (Monograph). SOX1712.  
 <2> Oxford Archaeological Unit, 1991, A421 Wendlebury-Bicester Dualling: Post Excavation Assessment and Updated Project Design (Unpublished document). SOX2574.  
 <3> Oxford Archaeological Unit, 2002, Excavations in the Extramural Settlement of Roman Alchester (Monograph). SOX1712.  
 <4> OAU Newsletter, Arch News vol xvii no 4 December 1989 pp.13-15 (Article in serial). SOX270.

<b>Site Number</b>	8
<b>Site Name</b>	Anglo Saxon and Medieval Settlement Behind the Kings Arms
<b>Type of Site</b>	Settlement
<b>NMRS Number</b>	
<b>HER Number</b>	16137
<b>Status</b>	Non-designated
<b>Easting</b>	458550
<b>Northing</b>	222250
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Evaluation revealed possible Saxon structures and a series of ditches and gullies. C17 and C18 deposits also located, as well as Medieval material. Excavation revealed earliest settlement in Bicester, possibly lay settlement associated with minster. BUILDING (Early Medieval/Dark Age - 410 AD to 1065 AD) Evidence SUB SURFACE DEPOSIT GRUBENHAUS (Early Medieval/Dark Age - 410 AD to 1065 AD) Evidence SUB SURFACE DEPOSIT SETTLEMENT (Early Medieval/Dark Age to Medieval - 410 AD to 1539 AD) Evidence FIND Evidence SUB SURFACE DEPOSIT 3) Draft publication report. 4) Full report in DRF - see for artefact descriptions. 5) See J Blair discussion of early Bicester minster and town development <1> Phoenix Consulting, 1998, Report on a Programme of Building Recording and Investigation: The King's Arms Hotel Complex, 4/6 London Road, Bicester, Oxfordshire (Unpublished document). SOX846. <2> Wessex Archaeology, 1998, Assessment and Evaluation of land behind the King's Arms Hotel, Bicester (Unpublished document). SOX845. <3> Trust for Wessex Archaeology, 2002, Anglo-Saxon and Medieval Settlement at Chapel Street, Bicester, Excavations 1999-2000 (Unpublished document). SOX624. <4> Oxford Architectural & Historical Society, Oxoniensia, Vol LXVII (2002), pp 141-78 (Serial). SOX284.

<5> Oxford Architectural & Historical Society, Oxoniensia, Vol LXVII (2002), pp 133-40 (Serial). SOX284.  
 <6> Wessex Archaeology, 2000, King's Arms, Bicester, Oxfordshire: Assessment Report on the results of the archaeological excavation including proposals for post-excavation analysis and publication (Unpublished document).

<b>Site Number</b>	9
<b>Site Name</b>	Site of Brick Works
<b>Type of Site</b>	Works
<b>NMRS Number</b>	
<b>HER Number</b>	558
<b>Status</b>	Non-designated
<b>Easting</b>	458900
<b>Northing</b>	221900
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Owned by Grimsley of the Builder's Yard. The pits were filled in during the 1920's as rubbish tips. BRICKWORKS (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING No more details <1> Ordnance Survey, 6" map, (1955) provisional edition (Map). SOX7. <2> Ordnance Survey, 1880's, 25" 1st Ed (Map). SOX251. <3> General reference, Sid Hedges: 'Bicester wuz a little town' (1968) p.33 (Bibliographic reference). SOX373.

<b>Site Number</b>	10
<b>Site Name</b>	Bicester London Road Station
<b>Type of Site</b>	Railway Station
<b>NMRS Number</b>	
<b>HER Number</b>	601
<b>Status</b>	Non-designated
<b>Easting</b>	458680
<b>Northing</b>	221960
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Originally a station on the Oxford, Winslow and Bletchley Railway. On absorption into L&NWR, rebuilt by J.W. Livock in grey RAILWAY STATION (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING local stone during the 1850s. Now closed and premises used as a scrapyard. 2) Main buildings on north west platform, 2 gables facing line with central bay between and extensions either end. Tiled roof and red brick chimneys <1> General reference, G Biddle: 'Victorian Stations' (1973) p.62 (Bibliographic reference).

SOX373.  
 <2> Field Notes/Field Visit, C J Bond (August 1978) (Unpublished document). SOX261.  
 <3> Slide Cabinet, 1 view of station buildings ( c.1978) (Photograph). SOX303.  
 <4> Black and White print photographs, 16 views as above (3) (Photograph). SOX315.

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**Site Number** 11  
**Site Name** Site of Post Medieval Pest House  
**Type of Site** House  
**NMRS Number**  
**HER Number** D1801  
**Status** Non-designated  
**Easting** 458600  
**Northing** 221900  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Stood in field near gasworks. Built in 1752 for patients with small pox. Made a temporary hospital for cholera patients in 1832. Demolished in 1849 for London Road Station INFECTIOUS DISEASES HOSPITAL (Post Medieval - 1540 AD to 1900 AD)  
 Evidence DEMOLISHED BUILDING  
 No more details  
 <1> 1852, Gardner's Oxfordshire Directory (Index). SOX302.  
 <2> General reference, Sid Hedges: 'Bicester wuz a little town' pp.21,23 (Bibliographic reference). SOX373

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**Site Number** 12  
**Site Name** Post Medieval Seal  
**Type of Site** Seal  
**NMRS Number**  
**HER Number** 12115  
**Status** Non-designated  
**Easting** 457300  
**Northing** 222680  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Lead cloth-seal from Angsburg. Probably 1st half of C17.  
 FINDSPOT (Post Medieval - 1540 AD to 1900 AD)  
 Evidence FIND  
 1) One lobe of a two lobed cloth-seal (linen or fustian)  
 <1> Field Notes/Field Visit, R A Chambers (OAU), Geoff Egan (researching lead cloth seals) (1979) (Unpublished document). SOX261.

**Site Number** 13  
**Site Name** Site of King's End Gate Toll House  
**Type of Site** Toll House  
**NMRS Number**  
**HER Number** 10164  
**Status** Non-designated  
**Easting** 457900  
**Northing** 222300  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** The site of the King's End Gate tollhouse, Bicester.  
 TOLL HOUSE (Post Medieval - 1540 AD to 1900 AD)  
 Evidence DEMOLISHED BUILDING  
 1) The average profit of the tollhouse in 1800-05 was £239. No more details  
 <1> 1953, A M Lambert, PhD Thesis, London, p.223, fig 20 (Monograph). SOX328.  
 <2> 1797, Davis Map (Map). SOX386.  
 <3> 1823, Bryant Map of Oxfordshire (Map). SOX329.

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**Site Number** 14  
**Site Name** Site of Wretchwick Gate Toll House  
**Type of Site** Toll House  
**NMRS Number**  
**HER Number** 10165  
**Status** Non-designated  
**Easting** 458700  
**Northing** 221700  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Site of Wretchwick Gate toll house as determined by maps.  
 TOLL HOUSE (Post Medieval - 1540 AD to 1900 AD)  
 Evidence DEMOLISHED BUILDING  
 1) Average profit in 1800 - 1805 was £175. No more details.  
 <1> 1953, A M Lambert, PhD Thesis, London, p.223, fig 20 (Monograph). SOX328.  
 <2> 1823, Bryant Map of Oxfordshire (Map). SOX329.  
 <3> Ordnance Survey, 1880's, 25" 1st Ed (Map). SOX251.

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**Site Number** 15  
**Site Name** Post Medieval Floated Water Meadow  
**Type of Site** Meadow  
**NMRS Number**  
**HER Number** 11224  
**Status** Non-designated

## Site Gazetteer



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<b>Easting</b>	457800
<b>Northing</b>	221200
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Floated water meadow constructed in 1838 by the tenant of Langford Farm, William Paxton WATER MEADOW (Post Medieval - 1540 AD to 1900 AD) Evidence EARTHWORK 1) Contains much detail on the engineering of the meadows. <1> General reference, Journal of the Royal Agricultural Society, Vol 1 (1840) pp.346-8. Copy in DRF (Bibliographic reference). SOX373.

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<b>Site Number</b>	16
<b>Site Name</b>	Saxon Ditch on Chapel Street
<b>Type of Site</b>	Ditch
<b>NMRS Number</b>	
<b>HER Number</b>	16163
<b>Status</b>	Non-designated
<b>Easting</b>	458450
<b>Northing</b>	222300
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	An Anglo-Saxon (C11th) ditch orientated N-S was found underlying possible horticultural deposits of medieval date. Finds included 3 sherds of Romano-British pottery, 2 sherds of Anglo-Saxon pottery and medieval and post-medieval sherds. Further Romano-British finds, including pottery, tile and hypocaust, indicate a relatively high status Roman site in the vicinity. DITCH (Early Medieval/Dark Age - 410 AD to 1065 AD) Evidence SUB SURFACE DEPOSIT DITCH (Post Roman - 410 AD to 1900 AD) Evaluation proved that c86% of application area has been truncated by course of stream that was much wider and by a half mcellar of a cottage that stood on the S part of the site. Anglo Saxon ditch oriented N-S was found in the NE part of the site, underlying possible horticultural deposits of medieval date (1). Small excavation in advance of a housing development revealed RB finds, including hypocaust tiles, which indicate presence of high status building within vicinity of site. Also pottery of early/mid AS date which shows that the settlement found elsewhere extended towards Market Square. Deliberate (?) infilling of ditch dated to late C11; ditch may have helped to keep livestock from marshy area to the W. Subsequent use of the site in C12-13 was for horitcultural or agricultural purposes. (2) <1> John Moore Heritage Services, 1999, An Archaeological Evaluation at Chapel Street, to the rear of No 1 Causeway, Bicester, Oxfordshire (Unpublished document). SOX733. <2> John Moore Heritage Services, 2001, An Archaeological Excavation at Chapel Street, to the rear of No 1 Causeway, Bicester, Oxfordshire: Archive Report (Unpublished document). SOX734.

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<b>Site Number</b>	17
<b>Site Name</b>	Former United Methodist Free Church, Sheep Street

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## Site Gazetteer



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<b>Type of Site</b>	Church
<b>NMRS Number</b>	
<b>HER Number</b>	552
<b>Status</b>	Non-designated
<b>Easting</b>	458300
<b>Northing</b>	222600
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Built c.1863. Now a furniture shop (1984). Nothing remains but the walls and the upper part of the street frontage CHAPEL (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING 1) Dressed stone in courses. Coping stones, quoins <1> M & E Eustace, 1977-84, Survey of Oxfordshire Chapels, October 1984. See full report in DRF (Unpublished document). SOX271. <2> Photographic Archive, 1 of chapel taken by M & E Eustace in 1984. Xerox copy in DRF (Photograph). SOX304.

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<b>Site Number</b>	18
<b>Site Name</b>	Post Medieval Pit (Nos 49-57 Sheep Street)
<b>Type of Site</b>	Pit
<b>NMRS Number</b>	
<b>HER Number</b>	12364
<b>Status</b>	Non-designated
<b>Easting</b>	458430
<b>Northing</b>	222600
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Pit located at Sheep Street during trial excavation in advance of road improvements. PIT (Post Medieval - 1540 AD to 1900 AD) Evidence SUB SURFACE DEPOSIT 2) 1 pit found under No 57 and other pits under Nos 37-9 (PRN 12365) 3) Demolition of Nos 37-39 and 49-57 Sheep Street allowed mechanical trial trenching in an area of the town known to have been occupied during the medieval period. On both sides little stratification remained beneath the post-medieval buildings that had fronted on to Sheep Street. The natural limestone bedrock, cut by three small undated pits, lay close the surface. To the rear of these buildings lay deeper, post-medieval garden soils. No recognisable medieval material was found <1> Archaeological Field Work, R A Chambers, OAU (1979). See report in DRF under PRN 12365 (Unpublished document). SOX1047. <2> 2002, Personal Comment, S Palmer (1990) (Unpublished note). SOX621. <3> CBA South Midlands Group, South Midlands Archaeology, CBA9 NL 8 (1978) p.117 (Serial). SOX5.

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## Site Gazetteer



<b>Site Number</b>	19
<b>Site Name</b>	Site of Shillingford's Brewery
<b>Type of Site</b>	Brewery
<b>NMRS Number</b>	
<b>HER Number</b>	873
<b>Status</b>	Non-designated
<b>Easting</b>	458400
<b>Northing</b>	222400
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Began making ales and mineral waters in 1846. Brewing ceased in 1896. BREWERY (Post Medieval - 1540 AD to 1900 AD) Evidence DEMOLISHED BUILDING 3) Transferred to Oxon History Centre. &lt;1&gt; General reference, Sid Hedges: 'Bicester wuz a little town' (1968) p.192 (Bibliographic reference). SOX373. &lt;2&gt; Slide Cabinet, 1 view of building exterior taken in 1969 (Photograph). SOX303. &lt;3&gt; Additional Information in Detailed Record File, Notes and references by I Hornbrook and E Leggatt (1990) (Index). SOX258.</p>

<b>Site Number</b>	20
<b>Site Name</b>	No 17 (The Hermitage) & 17A and attached Lockup, London Road
<b>Type of Site</b>	Listed Building
<b>NMRS Number</b>	1046494
<b>HER Number</b>	1802
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458677
<b>Northing</b>	222246
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>House, now 2 dwellings. Former lock-up, probably of C18 - early C19. It is constructed of limestone rubble with a Welsh slate roof and is of apsidal plan. LOCK UP (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING House, now 2 dwellings. Late C17/early C18. Coursed limestone rubble with some stucco dressings; plain-tile roof with brick stacks. 3-unit plan, subdivided. 2 storeys plus attics. 5-window front has a regular arrangement of tall 3-light casements, all with painted moulded architraves and most with old casements; doors have been inserted between bays one and 2 and bays 4 and 5. Roof has 5 renewed roof dormers and 3 stacks. Rear has tall casements, probably originally cross windows, and has a gabled stair projection. Interiors not inspected. Former lock-up. Probably C18/early C19. Limestone rubble with Welsh-slate roof. Apsidal plan built against left gable wall of No.17. Ribbed door to rear. Half-conical roof has a square apex louvre. Interior: stone-vaulted ceiling with a barred shaft to the louvre. Now an outbuilding in the garden of No. 15 (Gaul Cottage) (not included). (V.C.H.: Oxfordshire, Vol.VI, p.18). Listing NGR: SP5867722246 &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest,</p>

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	<p>Cherwell List 68: 3/57, p.26 (Index). SOX260. &lt;2&gt; Victoria County History of Oxford, Vol VI, p.18 (Serial). SOX252. &lt;3&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>
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<b>Site Number</b>	21
<b>Site Name</b>	Dovecote approx 50m S of Old Place Yard House
<b>Type of Site</b>	Listed Building
<b>NMRS Number</b>	1200488
<b>HER Number</b>	2799
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458330
<b>Northing</b>	222190
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Dovecote. Probably C17, altered C20. DOVECOTE (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING Limestone rubble with squared quoins and some brick; old plain tile roof. Square plan. Slightly-battered walls rise from a rubble plinth with double-stepped brick weatherings, and the upper stage has small scattered C20 openings. Front has a central doorway plus an upper door, now reached by a C20 concrete external stair. Pyramid roof has boxed eaves and a perspex finial light. Interior: rubble walls are lined with nesting boxes and have projecting stone ledges every third row; roof rebuilt C20. (Buildings of England: Oxfordshire, p.455). Listing NGR: SP5833322193 2) Stone built square dovecote dated to the C17th. Repaired in 1966 and new roof with imitation medieval tiles was put on. Consists of two storeys. The upper storey has been completely modernized. 175 nesting holes are visible although repair work and modernisation appears to have destroyed a number. 4 - 5) Transferred to Oxon History Centre. &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/95, p.45 (Index). SOX260. &lt;2&gt; Field Notes/Field Visit, J Arthur (1973) (Unpublished document). SOX261. &lt;3&gt; MPP Documents for Oxfordshire, S Lisk, 25.5.93 (Index). SOX259. &lt;4&gt; Photographic Archive, 2 views of dovecote taken by C Rosier in 1992. (Photograph). SOX304. &lt;5&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	22
<b>Site Name</b>	Bicester Snooker Club, Chapel Street
<b>Type of Site</b>	Listed Building
<b>NMRS Number</b>	1046478
<b>HER Number</b>	5112
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458480

<b>Northing</b>	222280
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	CHAPEL (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING
<p>Congregational chapel, now club. 1728, altered and extended c.1840 and 1873; converted late C20. Limestone rubble and chequer brick with some ashlar dressings; Welsh-slate roofs. Central block with added lower wings flanking a forecourt. 5- window brick front of main range, with blue headers, rises from a rubble plinth and has tall round-arched windows with C19 architraves and wooden tracery; left bay has been altered to form a rose window above an added pedimented porch, with a round-arched doorway surrounded by rusticated stone blocks. Hipped roof has boxed eaves which break in the centre below a small triangular pediment; only the pediment retains the deep plaster cove. Low wings have yellow headers, and the arched windows in their front gable walls have wooden "Gothic" tracery; right wing has a gable parapet; left wing returns beside main block with sash windows. Sides and rear of main block are in rubble and there are further arched and rose windows. Interior: upper room retains boarded ceiling of chapel with a deep plaster cove.</p> <p>2) Variegated brick on a stone base. The arched entrance is decorated with rusticated stone. There are four windows with stone jambs and bracketed sills</p> <p>3) The congregation, originally Presbyterian, was gathered after 1662 by John Troughton, fellow of St John's College. In 1672, Troughton's house was registered as a meeting place and in 1691 a certificate was issued for the 'New house of John Cornish'. The latter was superseded in 1728 by the present building. Transferred to Oxon History Centre.</p> <p>4) Transferred to Oxon History Centre.</p> <p>Conservation Area Bicester Conservation Area DOX17836</p> <p>Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features DOX16923</p> <p>Listed Building (II) - 1046478 BICESTER SNOOKER CLUB DOX2955</p>	

<b>Site Number</b>	23
<b>Site Name</b>	Bicester House, Kings End
<b>Type of Site</b>	Listed Building
<b>NMRS Number</b>	1046489
<b>HER Number</b>	10651
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458140
<b>Northing</b>	222490
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	MANOR HOUSE (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING
<p>Coursed squared limestone with ashlar dressings; Welsh-slate roofs with stone stacks. Double-depth plan. 2 storeys and 3 storeys. Symmetrical 5-window 2-storey entrance front is probably</p>	

<p>mostly early C18, and has stone-architraved 12-pane sashes and a central doorway, now sheltered by a later stone Doric porch. The arched head of the central first-floor window, the stone cornice, and the balustraded parapet are alterations, probably of c.1780; at the same time the storeyband was reduced and a second band removed, suggesting the former existence of a third storey. Returning to right, the 8-window garden front (originally of c.1780) with matching cornice and parapet, similar but taller windows and a first floor sill band, breaks back in the 2 left bays which have blind windows; 2 balancing bays to right were destroyed c.1820. The main section has a large early-C19 tripartite sash below a segmental arch in the middle 2 bays, replacing the former main entrance and porch, and in place of the 2 bays to left is a full-height C19 canted section containing 3 windows at each floor. The doublespan roof is hipped as it returns around the entrance range. The range returning to left of the entrance front has 3 storeys of sashes, arranged irregularly, but appears to contain little of the late-C17 front known from an engraving; the double-gabled rear wall, however, retains one cross window. Interior: entrance range has 3 rooms with mid-C18 fielded panelling and dentil cornices; one has a contemporary corner cupboard, with arched panelled door and serpentine display shelves, and also has a late-C18 fireplace in Adam style with arabesques, festoons and an oxhead in the carved frieze; the other 2 panelled rooms have early C18 marble fireplaces with serpentine heads and keyblocks, one with fluted keyblock, the other with fluted pilasters echoed in the remains of a contemporary pilastered overmantel incorporated into the later panelling. 2-storey entrance hall has a small early/mid C18 japanned fireplace, and an early-C19 cantilevered oak stair with C20 balustrade. Earlier range retains some C17 beams, one with ogee moulding. Garden range has large high rooms with early-C19 fireplaces, ceilings and joinery. The house is on the site of the manor house of the Nuns of Markyate; John Coker purchased the property in 1584 and it remained the home of the Coker family until 1978. (V.C.H.: Oxfordshire, Vol.VI, p.20; Buildings of England: Oxfordshire, p.456). Listing NGR: SP5814022499</p> <p>2) Work done on Bicester House, Queens Ave, by OAU in 1986. Local tradition that Bicester House marks the site of the medieval manor house owned until the Reformation by the Nuns of Markyates in Beds.</p> <p>3) Site of monastic grange, bought in 1584 by John Coker. Rebuilt in 17th century, enlarged in 1780 and damaged by fire shortly after. House remodelled c. 1820. 5 bay front with balustraded parapet and Doric porch.</p> <p>Conservation Area Bicester Conservation Area DOX17836</p> <p>Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features DOX16923</p> <p>Listed Building (II) - 1046489 BICESTER HOUSE Active DOX4207</p>	
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<b>Site Number</b>	24
<b>Site Name</b>	Post-Medieval Pottery
<b>Type of Site</b>	Find Spot
<b>NMRS Number</b>	
<b>HER Number</b>	11877
<b>Status</b>	Non-designated
<b>Easting</b>	458330
<b>Northing</b>	222420
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	FINDSPOT (Post Medieval - 1540 AD to 1900 AD)

## Site Gazetteer



Post medieval pottery and possibly remains of a medieval village extending into the post-medieval period. See also D11876 and 11878

Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features DOX16923

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<b>Site Number</b>	25
<b>Site Name</b>	No 8, The Causeway
<b>Type of Site</b>	Listed Building
<b>NMRS Number</b>	1046511
<b>HER Number</b>	12322
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458410
<b>Northing</b>	222330
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	HOUSE (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING

Restaurant and dwelling, C17. Limestone rubble with some brick dressings; timber framing, partly rendered, with brick infill; plain-tile roof with brick gable stacks. T-plan with linked rear block. 2 storeys plus attics. Rendered 3-window front has a jettied first floor, on irregularly-spaced shaped brackets, with 4-pane architraved sashes; ground floor has a blocked central doorway (now a window) between inserted shop windows and has a further doorway to extreme left. Large stack to right of steep-pitched roof is C18. Left gable wall is rubble; right gable wall is rendered and returns to a short rear wing of light framing with brick infill. Larger central wing links to a lower rear block, both timber framed. Interior: winder stair. Noted as dated 1676.

Conservation Area Bicester Conservation Area DOX17836

Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features DOX16923

Listed Building (II) - 1046511 DOX4212

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<b>Site Number</b>	26
<b>Site Name</b>	Post Medieval Pits, (37-39 Sheep Street)
<b>Type of Site</b>	Element
<b>NMRS Number</b>	
<b>HER Number</b>	12365
<b>Status</b>	Non-designated
<b>Easting</b>	458460
<b>Northing</b>	222550

## Site Gazetteer



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<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	PIT (Post Medieval - 1540 AD to 1900 AD) Evidence SUB SURFACE DEPOSIT

Demolition of Nos 37-39 and 49-57 Sheep Street allowed mechanical trial trenching in an area of the town known to have been occupied during the medieval period. On both sides little stratification remained beneath the post-medieval buildings that had fronted on to Sheep Street. The natural limestone bedrock, cut by three small undated pits, lay close the surface. To the rear of these buildings lay deeper, post-medieval garden soils. No recognisable medieval material was found.

Conservation Area Bicester Conservation Area DOX17836

Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features DOX16923

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<b>Site Number</b>	27
<b>Site Name</b>	Toll House, S End of Chapel Road (site of)
<b>Type of Site</b>	Monument
<b>NMRS Number</b>	
<b>HER Number</b>	12777
<b>Status</b>	Non-designated
<b>Easting</b>	458490
<b>Northing</b>	222050
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	TOLL HOUSE (Post Medieval - 1540 AD to 1900 AD) Evidence EXTANT BUILDING

Verbal communication: Local Informant as main provider of information. Recorded on SMR by I Hornbrook (1981)

Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features DOX16923

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<b>Site Number</b>	28
<b>Site Name</b>	Iron Age and Romano-British Settlement Site B
<b>Type of Site</b>	Monument
<b>NMRS Number</b>	
<b>HER Number</b>	1587
<b>Status</b>	Non-designated
<b>Easting</b>	457220
<b>Northing</b>	220950

## Site Gazetteer



<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>FINDSPOT (Early Iron Age to Roman - 800 BC to 409 AD) Evidence FIND FINDSPOT (Early Iron Age to Roman - 800 BC to 409 AD) SETTLEMENT (Late Iron Age to Roman - 100 BC to 409 AD) Evidence SUB SURFACE DEPOSIT</p> <p>In the field forming the NW angle between Chesterton Lane and the Oxford-Bicester road, excavation revealed a late IA and RB habitation site dating from the 1st and 2nd centuries. Insufficient information to be classified by MPP; probably northern extension of Roman small town of Alchester.</p> <p>Excavations in 1991 in advance of road construction revealed 4 sites, including B/A cremation and LIA domestic activity. 2 principal sites produced MIA evidence, extensively disturbed by R/B features. Settlement spans C1st-C4th with post Roman features found.</p> <p>Excavations in advance of road building in 1938 revealed Samian pottery fragments, 3 copper alloy fibula, fragments of callooy brooches and bracelets, 2 glass beads, fragments of glass, an iron stylus and dark red tesserae. Completed excavation report published as monograph. Extra detail revealed the finding of an inscribed headstone fragment from this area. Iron age and Roman stone building foundations.</p> <p>Constraint Area Middle Iron Age to Roman settlement Active DOX16929 SHINE Iron Age and Romano-British Settlement Active DOX18927</p>

<b>Site Number</b>	29
<b>Site Name</b>	Site of Bicester Bury End Manor
<b>Type of Site</b>	Monument
<b>NMRS Number</b>	
<b>HER Number</b>	10654
<b>Status</b>	Non-designated
<b>Easting</b>	458000
<b>Northing</b>	222000
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>CHAPEL (Medieval - 1066 AD to 1539 AD) Evidence DOCUMENTARY EVIDENCE DOVECOTE (Medieval - 1066 AD to 1539 AD) Evidence DOCUMENTARY EVIDENCE FISHPOND (Medieval - 1066 AD to 1539 AD) Evidence DOCUMENTARY EVIDENCE MANOR HOUSE (Medieval - 1066 AD to 1539 AD) Evidence DOCUMENTARY EVIDENCE</p> <p>The Basset family had a manor house in Bury End in C12. Site likely to have been near Bicester church - land granted to Bicester Priory by Gilbert Basset in 1180's described as being 'near his fishpond and free chapel of his curia'. In 1310 a document detailing the extent of the Earl of Lincoln's property mentions a messuage with fishpond worth 10s. a year and dovecote worth 2s.</p>

## Site Gazetteer



<b>Site Number</b>	30
<b>Site Name</b>	Undated Earthwork and Possible Fishponds (W of Bicester-Wretchwick Road)
<b>Type of Site</b>	Element
<b>NMRS Number</b>	
<b>HER Number</b>	12779
<b>Status</b>	Non-designated
<b>Easting</b>	458600
<b>Northing</b>	221700
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>FISHPOND? (Medieval - 1066 AD to 1539 AD) Evidence EARTHWORK</p> <p>In the 1961 AP one is shown to be water-filled. Reports in 1981 of earth-filling. Quarter mile south of Priory ?fishponds</p> <p>In Jan 1990 fishponds bulldozed for new building development. Ponds were probably medieval, built for Bicester Priory on marshy ground. No provision made for archaeological recording before demolition</p> <p>Constraint Area Undated earthwork - ?fishponds Active DOX16924</p>

<b>Site Number</b>	31
<b>Site Name</b>	Bicester Minster and Priory
<b>Type of Site</b>	Building
<b>NMRS Number</b>	
<b>HER Number</b>	16135
<b>Status</b>	Non-designated
<b>Easting</b>	458370
<b>Northing</b>	222270
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>1) Excavation revealed possible E boundary of minster precinct. 2) Number of C12 refuse pits, gully and postholes, and glazed tile found here. Assumed associated with Augustinian priory founded in late C12. Late Saxon, early Med and Post Med deposits and features found; mainly C11 pottery from secondary deposits. 3) See for J Blair discussion of minster and early town development 4) Features revealed during excavation were mainly late A-S, Medieval &amp; Post Med. 1 ditch may mark E boundary of precinct of minster Church, backfilled before foundation of Austin priory in later C12 5) A gas pipe was laid in the area occupied by the medieval Augustinian Priory c.1981. The trenches were shallow and no medieval material was observed</p> <p>Conservation Area Bicester Conservation Area Active DOX17836</p>



Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features Active DOX16923

<b>Site Number</b>	32
<b>Site Name</b>	The Old Priory and Attached Garden Walls, Priory Lane
<b>Type of Site</b>	Listed Building
<b>NMRS Number</b>	
<b>HER Number</b>	10612
<b>Status</b>	Listed Building- Grade II*
<b>Easting</b>	458420
<b>Northing</b>	222110
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	GUEST HOUSE (Medieval to Post Medieval - 1066 AD to 1900 AD) Evidence EXTANT BUILDING

Coursed limestone rubble with ashlar dressings; concrete plain-tile roof with brick stacks. Probable 4-unit plan. 2 storeys plus attics. South front has a central C20 roughcast projection but retains, to left, a trefoiled lancet at first floor; other doorways and casements are later insertions. North front has a wide doorway with a stop-chamfered lintel, and at first floor has 3 medieval 2-light windows with label moulds: 2 have cinquefoiled lights, one has uncusped arched lights, and all have lost their central mullions. East gable wall, facing Priory Lane, has a restored 2-light window with label, arched lights and recessed spandrels, and in the gable has a single-light opening with a rectangular head; at ground floor is an inserted C20 stone-mullioned window. Steep-pitched roof has a gable stack to rear plus 2 lateral stacks on the north side, and has one gabled roof dormer. Easternmost bay has casements and a slightly lower roof but is probably contemporary, Interior: noted as having stop-chamfered beams, and a C17 butt-purlin roof with collars, ties and vertical struts to the trusses, straight windbraces below the purlins, and a diagonally-set ridge piece. A 4-centred doorway noted in 1968 is probably within the C20 extension on the north side. The building may have been the hospice of Bicester Priory. The masonry of the garden wall extending from the east gable wall northwards to The Mill (not included) is continuous with that of the house and is probably contemporary (C15/early C16); the wall is approximately 2.5 metres high but appears to have been originally 3 metres to 3.5 metres high. Immediately north of the house is a 2-centre arched doorway in chamfered marlstone ashlar. The section of wall running southwards to the stables (q.v.) is now ruinous. The walls and buildings complete the enclosure formed by the remaining garden walls (q.v.). (V.C.H.: Oxfordshire, Vol.VI, p.16; Buildings of England: Oxfordshire, p.455; D. Hinton, "Bicester Priory", Oxoniensia, Vol.33, pp.26-7; D. Watts, A Short History of Bicester Priory, pp.10 and 13). Listing NGR: SP 58423 22118

(2) Claimed by VCH to be guesthouse of priory, probably late C15/early C16, altered C17/C18, re-using priory stone. Medieval window and two arched lights under a square head on entrance front; at the side 2 windows and square hoods and arched cusped lights, another without cusping.

(4) A measured survey was carried out by S Crutchley and J Steane in 1987. Three phases of construction were identified from the C17 through to the C19 and C20. See report for details

(5) The new owner of The Old Priory has demolished the connecting wall c.1986 between the house and the barn without planning consent or Listed Building consent. The house is thought to have originated as a late medieval hospice to provide accommodation for visitors to the Augustinian priory

(7) Building work revealed west wall of south transept of priory church. A human burial was also discovered within the south aisle of the priory church but no dating evidence was

recovered. 9, 10& 12) Transferred to Oxon History Centre.

Conservation Area Bicester Conservation Area Active DOX17836

Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features Active DOX16923

Listed Building (II\*) - 1046470 THE OLD PRIORY AND ATTACHED GARDEN WALLS Active DOX2950

<b>Site Number</b>	33
<b>Site Name</b>	The Old Vicarage, Church Street
<b>Type of Site</b>	Listed Building
<b>NMRS Number</b>	
<b>HER Number</b>	10614
<b>Status</b>	Listed Building- Grade II*
<b>Easting</b>	458250
<b>Northing</b>	222300
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	VICARAGE (Medieval to Post Medieval - 1066 AD to 1900 AD) Evidence EXTANT BUILDING

Limestone rubble, partly rendered, and coursed squared limestone with ashlar dressings; part-old plain-tile roofs with brick and ashlar stacks. Hall house with cross wing, enlarged to U-plan. 2 storeys and 2 storeys plus attics. 2-window front of rendered main range has C19 stone-mullioned windows at first floor; C19 stone lean-to addition to ground floor has similar windows with lattice glazing, and returns beside the short C19 stone wing which projects from the left of the main range. Halfhipped front gable end of wing has stone mullioned-and-transomed windows, and there is a 4-centre arched stone doorway in the end of the lean-to and a parapetted canted bay window at first floor in the angle of the ranges. Crosswing returns to an earlier random-rubble range, which has five 2-light casements, facing left, each set into a stone surround of c.1500 with wide casement mouldings and labels with deep drops; roof has a small roof dormer. Rear of main range includes a large 2-storey C19 bay window. Service range returning to rear from right end of main range is probably C18 and is partly rendered over light framing. Interior: main range comprises a 3-bay hall, now horizontally divided, but retaining a fine arch-braced collartruss roof, with cambered collars, and hollow-chamfered braces extending from the apex of the arches down to shortened wallposts; rafters are pegged at the ridge and the 2 rows of butt purlins are supported on heavy arched windbraces. 2-bay roof of chamber at right end of main range has a similar structure, except that there is a ridge piece and the central truss is of "scissor" type, formed from opposed S-shaped braces. The chamber (or solar) contains a Tudor-arched fireplace with a wooden bressumer, recessed spandrels, and hollow chamfering carried down the ashlar jambs. The room below has a ceiling with intersecting moulded V-section beams and very wide hollow-chamfered joists (the plaster boss is probably C19), and it has 2 Tudor-arched wooden doorways (one blocked), with recessed spandrels, one doorway retaining an ancient plank door with original ironmongery. The cross wing has C17/early-C18 and C19 roof structures but retains a fragment of an earlier roof with a diagonally-set ridge piece. The present through-passage from the front door, now opening into a C19 stair hall, is probably on the site of a screens passage. The hall roof is unblackened and a wide Tudor-arched moulded bressumer, now re-set on its side in a chimneybreast below the chamber, may be from the missing hall fireplace, possibly on the site of the present bay window.

(V.C.H.: Oxfordshire, Vol.VI, p.17; Buildings of England: Oxfordshire, p.455).  
Listing NGR: SP5825522309

2) Vicarage existed on this site in 1226 but present building dates from 16th century (c.1500)

3) Windows with square labels and later wooden frames. Additions at side made in 1882

4) Bicester House is thought to stand on the site of the manor house which formed the focus of the manor of King's End held throughout the medieval period by the nuns of Markyate (Hertfordshire). In December 1988 advance groundworks for a sheltered housing scheme in the garden surrounding Bicester House substantially destroyed any remaining archaeological evidence for the manor house and its outbuildings. This was the last remaining prime archaeological site that may have shed light on the early development of the town. There was no opportunity for archaeological investigation

Conservation Area Bicester Conservation Area Active DOX17836

Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features Active DOX16923

Listed Building (II\*) - 1199889 THE OLD VICARAGE Active DOX3260

<b>Site Number</b>	34
<b>Site Name</b>	Site of Monastic Grange & Manor House
<b>Type of Site</b>	Monument
<b>NMRS Number</b>	
<b>HER Number</b>	10652
<b>Status</b>	Non-designated
<b>Easting</b>	458150
<b>Northing</b>	222500
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	GRANGE (Medieval - 1066 AD to 1539 AD) Evidence DESTROYED MONUMENT Evidence DOCUMENTARY EVIDENCE Evidence EARTHWORK MANOR (Medieval - 1066 AD to 1539 AD) Evidence DOCUMENTARY EVIDENCE Evidence EARTHWORK

(1) By the 12th century the manor at Kings End already granted to the Benedictine nuns of Markyate Priory, Beds. who built a manor-house and grange here. Suppressed in 1536, property subsequently came into hands of John Coker (PRN 10651)

(2) An earthwork survey carried out in 1983 suggested that a substantial building, 100 yards north of the accepted site in Bicester House grounds may represent the remains of the Priory. Limited recording made during development revealed ditches, yards and domestic debris including medieval pottery. Site is now part of Queens Avenue housing development

(3) Not scored for MPP

(4) Small excavation in 1989 on site 100m north of site of medieval grange (earthwork

remains). Recovered from 4 trenches was Roman pottery, ?medieval holloway and a ?medieval property boundary to the grange. In December 1988 groundworks in advance of sheltered housing scheme substantially destroyed any remaining archaeological evidence for the manor house and its outbuildings

Earthworks in the grounds of Bicester house imply a substantial building lay 80m from the accepted site of grange and manor house. Site is part of Queens Avenue housing development.

(5) Watching brief at Bicester House in Queens Avenue yielded iron nails, pottery, glass, bone, undated shell, and lines of ditches, yard areas and domestic debris; as well as spreads of medieval pottery and domestic/building debris. The western extent of medieval stone quarries was revealed (PRN 13882)

(6) Watching brief revealed lines of ditches, yard areas and domestic debris

Conservation Area Bicester Conservation Area Active DOX17836

Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features Active DOX16923

<b>Site Number</b>	35
<b>Site Name</b>	King's End Shrunken Settlement
<b>Type of Site</b>	Monument
<b>NMRS Number</b>	
<b>HER Number</b>	10653
<b>Status</b>	Non-designated
<b>Easting</b>	458100
<b>Northing</b>	222450
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	SETTLEMENT (Medieval to Post Medieval - 1066 AD to 1900 AD) Evidence DEMOLISHED BUILDING Evidence DOCUMENTARY EVIDENCE

1) Possibly a planned settlement of C12th to C13th associated with Grange of Markyate nuns (PRN 10652). Cottages on north side of grange demolished by John Coker in 1780s-90s to extend grounds of Bicester House over part of the former green. People evicted were re-housed in a row of cottages along the main road

Conservation Area Bicester Conservation Area Active DOX17836

Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features Active DOX16923

<b>Site Number</b>	36
<b>Site Name</b>	Medieval Cross, Bicester Churchyard (site of)
<b>Type of Site</b>	Monument
<b>NMRS Number</b>	
<b>HER Number</b>	D10655

## Site Gazetteer



<b>Status</b>	Non-designated
<b>Easting</b>	458300
<b>Northing</b>	222310
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>A medieval cross stood on the north side of church. Shaft cut down in 18th century to bear a sun dial. Removed in 1863</p> <p>CROSS (Medieval - 1066 AD to 1539 AD) Evidence DESTROYED MONUMENT Evidence DOCUMENTARY EVIDENCE</p> <p>Conservation Area Bicester Conservation Area Active DOX17836</p> <p>Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features Active DOX16923</p>

<b>Site Number</b>	37
<b>Site Name</b>	Medieval Pottery, 8-16 London Road
<b>Type of Site</b>	Element
<b>NMRS Number</b>	
<b>HER Number</b>	11500
<b>Status</b>	Non-designated
<b>Easting</b>	458630
<b>Northing</b>	222240
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Unstratified medieval pottery rim from limited trenching at the site, and three C18-C19 pits revealed after houses had been demolished.</p> <p>FINDSPOT (Medieval - 1066 AD to 1539 AD) Evidence SUB SURFACE DEPOSIT CESS PIT (Post Medieval - 1540 AD to 1900 AD) Evidence FIND Evidence SUB SURFACE DEPOSIT</p> <p>1) Excavation revealed abundant medieval pottery during excavation to establish stratigraphy. Like other medieval towns on limestone, no medieval stratigraphy survived. Two of 3 Post Medieval cess pits were found to extend under the present pavement</p> <p>Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features Active DOX16923</p>

<b>Site Number</b>	38
<b>Site Name</b>	Medieval Settlement in Field E of Manor Farm
<b>Type of Site</b>	Monument

## Site Gazetteer



<b>NMRS Number</b>	
<b>HER Number</b>	D11876
<b>Status</b>	Non-designated
<b>Easting</b>	458200
<b>Northing</b>	222510
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>FINDSPOT (Medieval - 1066 AD to 1539 AD) Evidence FIND SETTLEMENT (Medieval - 1066 AD to 1539 AD) Evidence DESTROYED MONUMENT Evidence SUB SURFACE DEPOSIT</p> <p>(1) Site watched and recorded in detail by R A Chambers, OAU (2) Earthwork survey and trial excavation on the Bicester House site, north of Lower Home Farm, was carried out by OAU in 1983. The medieval settlement was shown to include building foundations, a holloway, causeway and ridge and furrow (3) House building in 1985 revealed pottery, domestic and building debris. No clear archaeological view (3a) The site contained a continuation of the medieval settlement recorded to the east during the development of Lower Home Close in 1979. The earthworks were recorded in 1983. In particular, earthwork remains of a substantial building apparently arranged around three sides of a yard may represent the remains of the Nuns of Markyates manor house, a building traditionally located about 100 yds to the south in the grounds of Bicester House (4) Limited archaeological recording carried out on Queens Avenue, west of Home Close. Building work on the site confirmed parts of the earthwork survey of 1983 revealing the lines of several ditches, yard areas and domestic debris including medieval pottery. Medieval quarries exposed during the development of Lower Home Close encroached on to the site for some 30m</p> <p>Constraint Area Bicester historic core, including possible Anglo Saxon inhumation cemetery and settlement, medieval inhumations and other multi-period features Active DOX16923</p>

<b>Site Number</b>	39
<b>Site Name</b>	Medieval Causeway
<b>Type of Site</b>	Causeway
<b>NMRS Number</b>	
<b>HER Number</b>	12387
<b>Status</b>	Non-designated
<b>Easting</b>	458440
<b>Northing</b>	222350
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Excavation in advance of building revealed Post Medieval cobbling N of causeway, which indicated that reclamation of river flood plain occurred in early post medieval period. CAUSEWAY (Medieval - 1066 AD to 1539 AD) Evidence SUB SURFACE DEPOSIT</p> <p>(1) Excavation in advance of building by Robert White for OAU (1980). Post medieval cobbling north of causeway showed that reclamation of river flood plain occurred in early post medieval period. The Causeway was built to connect the Market Square with the church of St Edburg. It</p>

crossed the town brook. Probably earlier than C14th. Northern end of trench revealed number of drains set into Post Med deposits; middle of trench revealed well-preserved Post Med cobbled surfaces; southern end revealed series of tipped deposits which formed edge of foundation of Causeway.

(2) Unclassifiable for MPP

(3) Excavation reported in Source (1). If the causeway is older than C14th, the excavated foundation may only represent a repair or enlargement of an existing embankment

<1> CBA South Midlands Group, South Midlands Archaeology, CBA9 NL 11 (1981) p.115 (Serial). SOX5.

<2> MPP Documents for Oxfordshire, S Lisk, 11.5.93 (Index). SOX259.

<3> Medieval Archaeology, Vol XXV (1981) p.212 (Serial). SOX318.

<4> OAU Newsletter, Vol VII No 3 May 1980 p.1 (Article in serial). SOX270.

<b>Site Number</b>	40
<b>Site Name</b>	Medieval Stone Quarry (site of)
<b>Type of Site</b>	Quarry
<b>NMRS Number</b>	
<b>HER Number</b>	D13882
<b>Status</b>	Non-designated
<b>Easting</b>	458250
<b>Northing</b>	222500
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Bed of limestone in the area revealed heavy quarrying in medieval period STONE QUARRY (Medieval - 1066 AD to 1539 AD) Evidence DESTROYED MONUMENT Evidence EARTHWORK (1) Backfilled and built over by late medieval times. First seen in preparation of ground for housing development at Manor Farm in 1980 (2) West end of quarry revealed in housing development to north east of Bicester House (3) Further development on the Queens Avenue site showed that the quarries extended for some 30m from the Home Close site (4) Classified as quarry (medieval) for MPP <1> CBA South Midlands Group, South Midlands Archaeology, CBA9,NL 10 (1980) p. 169. R A Chambers (Serial). SOX5. <2> CBA South Midlands Group, South Midlands Archaeology, CBA9 NL 16 (1986) p.95. R A Chambers (Serial). SOX5. <3> CBA South Midlands Group, South Midlands Archaeology, CBA9 NL 17 (1987) pp.80-1. R A Chambers (Serial). SOX5. <4> MPP Documents for Oxfordshire, S Lisk, 2.4.93 (Index). SOX259.

<b>Site Number</b>	41
<b>Site Name</b>	Medieval Inhumation (Bicester Library Extension)
<b>Type of Site</b>	Inhumation
<b>NMRS Number</b>	
<b>HER Number</b>	15868
<b>Status</b>	Non-designated

<b>Easting</b>	458356
<b>Northing</b>	222202
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	E-W burial probably contemporary with St. Edburga's Priory (PRN 5111). No evidence of coffin or any grave goods BURIAL (Medieval - 1066 AD to 1539 AD) Evidence SUB SURFACE DEPOSIT 1) Principal discovery during the watching brief was an E-W burial, probably contemporary with St Edburga's Priory (PRN 5111). Skeleton was cleaned, recorded in situ, but not removed; instead it was sealed with layer of gravel. No evidence for coffin or any grave goods. Finding supports premise that east end of library lies over cemetery outside the west end of Church. Sensitive archaeological deposits may lie within 30cm of present ground level to south and east of library <1> Oxford Archaeological Unit, 1995, Bicester Library Extension: Archaeological Watching Brief Report (Unpublished document). SOX1240. <2> CBA South Midlands Group, South Midlands Archaeology, Vol 26 (1996) p.55 (Serial). SOX5.

<b>Site Number</b>	42
<b>Site Name</b>	Site of Medieval Fishpond, Bicester Priory
<b>Type of Site</b>	Fishpond
<b>NMRS Number</b>	
<b>HER Number</b>	13746
<b>Status</b>	Non-designated
<b>Easting</b>	458630
<b>Northing</b>	221743
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Tentative location for fishpond based on Blomfield's reconstruction of Priory area FISHPOND (Medieval - 1066 AD to 1539 AD) Evidence DOCUMENTARY EVIDENCE 1) Not clear on what evidence this plan is based. In 1301, Prior of Bicester spent 32d on stocking pond with pike, perch and roach. Priory ponds cleaned out in 1452 and 1457. Tentative reconstruction of precinct shows one fishpond on south side of priory cemetery, separating it from prior's garden and a second fishpond in orchard west of priory church and south of parish church in general area of SP 583 222 2) Not classifiable for MPP 3) At the end of January 1990 the fishponds were bulldozed away as the site was cleared for a new building development. The ponds were almost certainly built for Bicester Priory on what was originally marshy ground. The fact that they survived to be recorded on the 1st Edition OS suggests that they continued to be maintained and stocked after the dissolution <1> General reference, Blomfield: 'History of Deanery of Bicester' (1884) pp.142, 186, 201 (Bibliographic reference). SOX373. <2> MPP Documents for Oxfordshire, S Lisk, 16.6.93 (Index). SOX259. <3> OAU Newsletter, Arch News vol xviii no 1 March 1990 p.15 (Article in serial). SOX270.

<b>Site Number</b>	43
<b>Site Name</b>	Site of St Edburga's Priory
<b>Type of Site</b>	Priory
<b>NMRS Number</b>	
<b>HER Number</b>	1593
<b>Status</b>	Non-designated
<b>Easting</b>	458410
<b>Northing</b>	222170
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Founded between 1182 and 1185 and dissolved in 1536. Excavations in 1819 and 1962-3 in old place yard, now housing estate. C21st century work prior to demolition and redevelopment of the extant buildings.</p> <p>HOLLOW WAY (Early Medieval/Dark Age to Medieval - 410 AD to 1539 AD)  Evidence EXCAVATED FEATURE  BURIAL (Medieval - 1066 AD to 1539 AD)  Evidence SUB SURFACE DEPOSIT  MONASTERY (Medieval - 1066 AD to 1539 AD)  Evidence DOCUMENTARY EVIDENCE  Evidence SUB SURFACE DEPOSIT  GRAVE SLAB (Post Medieval - 1540 AD to 1900 AD)  Evidence FIND</p> <p>1) Founded between 1182 and 1185 and dissolved in 1536. Excavations in 1819 and 1962-3 in old palace yard, now housing estate. Tiles and stone foundations of the cloisters have been located as well as a burial in the former south aisle of the priory church.</p> <p>1a) Rubble footings of the Augustinian Priory Church were plotted during building works for Oxfordshire County Council south of the parish church. Medieval patterned floor tiles were recorded and burials were observed.</p> <p>2) For David Hinton's history and excavations, plus two maps showing extent of priory for investigation.</p> <p>2a) See DRF for correspondence/notes/summary from Hinton with regard to excavations.</p> <p>3) For remaining fragments in a C17th building see PRN 10612.</p> <p>4) 1980-1 trench for gas pipeline on western edge of former priory revealed no medieval material.</p> <p>5) Further wall foundation of the priory church and cloister were discovered during building operations. Burial found in former south aisle. Possible coffin remains.</p> <p>6) Part of north wall of north transept of priory church revealed during excavation by D Hinton c.1969. There was a mason's Lodge outside.</p> <p>8) See for discussion by J Blair of early minster and town development.</p> <p>9) Ground Penetrating Radar survey carried out revealed possible remnants of Cloister along with a number of linear features thought to be walls. However, modern infrastructure elements dominated the results of the GPR survey, and it is thought these have obscured or dominated much of the geophysical response of any medieval features associated with the former priory. 10 features have been identified for further investigation.</p> <p>10) See Detailed Record File for copy of pamphlet.</p> <p>11) See Detailed Record File for copy of section on 1819 excavation, as well as historical information and miscellaneous photos of features in Bicester Church. All transferred to Oxon History Centre.</p> <p>13) Building work c.1982 to provide an extension for an Old People's Home on the site of the medieval Augustinian priory revealed the west wall of the south transept of the priory church. The wall consisted of a mortared limestone rubble foundation c.1.3m wide and 1m deep. It rested on the limestone bedrock, which formed the former flood plain of the river Bure. Much of the ground was deeply disturbed during the building of the Old People's Home in 1968-9 and current building work did not reveal the south wall of the church although a stone foundation trench was recorded a few metres to the west in 1968. No dating evidence was recovered from any level.</p>

14) An evaluation uncovered remains of the priory including substantial walls, robber trenches and bedding deposits for floors. Two ovens were also revealed and may have been associated with the Priory, but as they cut an old floor level inconsistent with industrial use of the area, they are likely to be dated to a period when the function of parts of the Priory had altered or after it had ceased to be a Priory. Buried soils containing dateable finds (including late Saxon and early Medieval pottery), a ditch and a hollow-way may be evidence of occupation immediately prior to the re-organisation of boundaries and land-use in advance of the construction of the Priory. Presence of Iron Age pottery was significant as the period is poorly represented in the area. This pottery was found in a ditch on a different alignment to other linear features on site, and might be an Iron Age ditch. Two possible early to mid Saxon sherds would be consistent with evidence for a broadly contemporary cemetery found at the Church of the Immaculate Conception and with documentary evidence for the founding of the church of St Edburg. Surviving archaeology has high potential to enhance the understanding of the Priory and perhaps the land use prior to its construction.

15) Some priory remains were identified underneath St. Edburg's House following its demolition. A wall foundation previously recorded during the construction work in the 1960's was seen and represents the foundation of the north exterior wall of the church. A continuation of this wall was seen in archaeological investigations at the former Bryan House in 2011 (EOX3389).

Masonry identified seems to represent a pillar base which was recorded in the 1960's although it could be the continuation of a linear foundation investigated in 2011 and is more likely to represent foundation of the colonnade between the nave and the north aisle. A wall found within the area of the lift shaft represents the south exterior wall of the priory church. This had been recorded in the 1960's and was seen surviving in good condition at that time; the condition has since deteriorated. Wall remains located in the east extension of the former St. Edburg's House represents the foundation of the west wall of the south transept and might also be related with the cloister. Floor surfaces found in the lift shaft area are that of the internal floor of the nave. Some of the floor surfaces recorded might relate to surfaces found in 2013 although the direct stratigraphic relationship was not established. Construction works in the 1960's had a greater impact on the archaeological remains than was the case for former Bryan House immediately east. Based on data collected during the WB, it can be concluded that archaeological feature/remains of the Priory church, cloister and additional building are better preserved outside of the actual footprint of the former St Edburg's House.

<1> OS Record Card, SP 52 SE 8 (Index). SOX273.  
<1a> Oxford Architectural & Historical Society, Oxoniensia, Vol XXIX/XXX (1964/65) p.190 (Serial). SOX284.  
<2a> Additional Information in Detailed Record File, notes, letter, and site summary (Index). SOX258.  
<2> Oxford Architectural & Historical Society, Oxoniensia, Vol XXXIII (1968) pp.22-52; Vol XXXIV (1969) pp.21-28. See also DRF (Serial). SOX284.  
<3> Local Informant as main provider of information, C J Bond, 24.2.76 (Verbal communication). SOX277.  
<4> CBA South Midlands Group, South Midlands Archaeology, CBA9 NL 12 (1982) p.140. Humphrey Woods (Serial). SOX5.  
<5> CBA South Midlands Group, South Midlands Archaeology, CBA9 NL 13 (1983). R A chambers (Serial). SOX5.  
<6> Medieval Archaeology, Vol XIII (1969) p.247 (Serial). SOX318.  
<7> Additional Information in Detailed Record File, Historical notes from C J Bond (1981) and correspondence relating to development of site (1960's) (Index). SOX258.  
<8> Oxford Architectural & Historical Society, Oxoniensia, Vol LXVII (2002), pp 133-40 (Serial). SOX284.  
<9> Oxford Archaeology, 2006, Old Place Yard, Bicester: Geophysical Survey (Unpublished document). SOX1861.  
<10> D J Watts, 1983, A Short History of Bicester Priory, copy in DRF (Unpublished document). SOX2279.  
<11> J Dunkin, 1823, The History of the Bullingdon and Ploughley Hundreds, Vol 2, Bicester Priory section in DRF (Monograph). SOX2280.

<12> OAU Newsletter, Vol XIV, No 1 March 1986 (Article in serial). SOX270.  
 <13> OAU Newsletter, Vol IX No 6 December 1982 pp.1-2 (Article in serial). SOX270.  
 <14> Thames Valley Archaeological Services, 2013, Land at Old Place Yard, Bicester, Oxfordshire: Archaeological Evaluation (Unpublished document). SOX5062.  
 <15> John Moore Heritage Services, 2014, An Archaeological Watching Brief at St. Edburg's House: Old Place Yard, Bicester, Oxfordshire (Unpublished document). SOX5199.

<b>Site Number</b>	44
<b>Site Name</b>	Church of St Edburg, Church Street
<b>Type of Site</b>	Church
<b>NMRS Number</b>	1199769
<b>HER Number</b>	5111
<b>Status</b>	Listed Building- Grade I
<b>Easting</b>	458300
<b>Northing</b>	222270
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Norman arches and medieval structure, probably C11 to C14 with C15 and C16 alterations and restored in 1862.</p> <p>CHURCH (Medieval - 1066 AD to 1539 AD)              Evidence EXTANT BUILDING              CRYPT (Post Medieval - 1540 AD to 1900 AD)              Evidence FIND              INHUMATION (Post Medieval - 1540 AD to 1900 AD)              SP5822S BICESTER CHURCH STREET              3/24 (South side)              31/01/52 Church of St Edburg              GV I</p> <p>Church. Probably C11, C12, C13 and C14, altered C15 and C16; tower C15/early C16; restored 1862 by C.N. Beazley in consultation with G.E. Street. Part-coursed limestone rubble with ashlar and some marlstone-ashlar dressings; lead and Welsh-slate roofs. Cruciform plan with north chancel aisle, nave aisles, west tower and north porch. Restored chancel retains C12 ashlar clasping buttresses and a small Gothic priest's door to south, but has a 5-light east window and 2- and 3-light side windows in C19 Geometrical-Decorated style. The aisle to north formerly incorporated a priest's dwelling, and has 2 squareheaded C15 windows facing east, both with cinquefoil lights and labels, one originally serving an upper floor; a C15 stair with 3-centre arched entrance projects at the north-east-angle; north wall has two 2-light C19 windows, plus a blocked rubble archway in the lower part of the wall. The north transept retains fragments of a C12 chevron string course, interrupted by a large 4-centre-arched 5-light window with Perpendicular drop tracery and a deep casement mould. A later extension to west has a restored 2-light window with reticulated tracery plus the outline of an arched opening, and is continued westwards by the narrower early-C14 north aisle which retains two 2-light C14 windows to north plus a later large single-light window to west. The C14 porch has an entrance arch with wave mouldings, and shelters the north door with earlier C14 mouldings; the small 2-light traceried window to west is also C14, but the 2-light east window is C15 as is the former upper floor with its square-headed 2-light C15 north window and crenellated parapet. The south transept also has remains of the C12 chevron string plus a large restored Perpendicular window; it was extended eastwards, probably in the C15, but now has a C19 east window similar to those in the chancel. The south aisle is early C13 with 3 restored 3-light C14 windows to south and a C15 parapet panelled with quatrefoils; it retains a fine doorway with a deeply-moulded arch and 3 orders of</p>

shafts (2 detached and one enlarged) with 4 early stiff-leaf capitals. Above the door are fragments of carved stonework, probably from tombs in the demolished church of Bicester Priory. The west wall contains a 3-light C16 window with uncusped heads and a label. The C16 clerestory has 4 arched windows to north and 4 square-headed windows to south, all with 2 uncusped 4-centre-arched lights. Over the crossing is a large square-headed C15 window, facing south, with 4 cinquefoil lights within a deep casement moulding; on the north face is a fine lead rainwater head, decorated with moulded shafting and ornamental cresting, and dated 1655; 2 plainer lead heads on the north clerestory are dated 1704. The 3-stage battlemented tower, with heavy moulded plinth and strings plus diagonal stepped buttresses, has an arched west door with quatrefoil spandrels, set within a deep casement moulding and with big blank shields terminating the label drops; the large 2-light window above was probably altered in 1750, the date inscribed in the casement moulding; bell chamber stage has 2-light arched openings with Perpendicular tracery and transoms, but the panelled and crocketed pinnacles are probably C17/C18. Interior: chancel is entirely C19 except for the wide archway to north, of 3 chamfered orders, which is probably early C14. The round-headed chancel arch, of unchamfered orders, is matched by the tall plain transept arches of one order, which have linked abaci; they are probably C11 and formed part of a pseudo-cruciform arrangement with narrower flanking "wings" or transepts but not necessarily with a fourth arch to west. The 4-bay south arcade of c.1200 (which must post-date the demolition of a fourth crossing arch) has pointed arches with deep angle rolls, probably later reinforced by the inner chamfered orders and partly rebuilt, and set on late-C14 clustered columns set diagonally, one with the remains of crocketed canopy work; the moulded capitals to the responds survive but the 3 main capitals are C19. Further salvaged panels of carved stonework are set in the spandrels. The arch from the south transept to the aisle is completely C14 except for re-used Transitional capitals with square abaci and stiff-leaf foliage. The 3-bay south arcade of c.1300 has arches of 3 chamfered orders, octagonal columns and moulded capitals, one with pellet decoration; a crude triangular-headed arch to east is probably simply a large squint linked with the western extension of the transept; the outer spandrels of the arcade retain sections of the C12 chevron band, formerly external. The fine tall narrow tower arch is C15/early C16. Except for the chancel, all roofs are probably C15/C16 with moulded timbers; the nave roof, which looks C16 but is noted as renewed 1803, has large cambered tiebeams with pierced panelled infill to the trusses and to the spandrels of the curved braces. Fittings are all C19 and C20 except for a C15 screen in the north transept with 2 tiers of traceried panels, and the strange tapering polygonal font with its C18 flat wooden cover; the vestry screen in the north chancel aisle, with C19 painted decoration on a gilt ground, is signed "H.L. Busby 1882". 4 ancient chests: one dated 163(?), another 1668. Small window over the priest's door said to contain C14 glass; remainder of stained glass (mainly chancel and south aisle) is C19, including a window of 1866 by Morris and Co. with panels by Burne-Jones and Webb, one of 1853 by O'Connor and 2 by Mayer and Co. of Munich. The numerous monuments include a C15 figure brass, C17 engraved brasses, tablets and carved cartouches, and many elaborate C18 wall monuments. The large marble memorial to Sir Thomas Grantham (died 1718) by Delvaux and Scheemakers has weeping cherubs supporting a large portrait medallion against a fine Baroque surround; a monument to Sir Edward Page Turner (died 1766) by Joseph Wilton has a big urn and portrait medallions; one of the many monuments to the Cokers of Bicester House is a relief of c.1794 by Sir Richard Westmacott. (V.C.H.: Oxfordshire, Vol.VI, pp.46-7; Buildings of England: Oxfordshire, pp.452-4). Listing NGR: SP 58300 22279

2) Examination of floor of north aisle.

3) The pews in the church were taken up c.1984 in preparation for reflooring in York stone. The building has developed from an aisleless cruciform plan dated to the C12th. The main archaeological interest was to look for evidence of a Saxon church and secondly, to explain why the easternmost bay of the north aisle is rather wider than the rest - was this a chapel? The Victorian boiler-house has destroyed any evidence relating to a north-aisle chapel and the Victorian restorers seem to have lowered the floor throughout to make an air space beneath the pews, thus digging out any surviving medieval floors and probably any Saxon floor also.

4) Transferred to Oxon History Centre.

5/7) An C18 brick vaulted crypt was uncovered, thought to be associated with the nearby memorial to Sir Edward Turner and his wife, Dame Cassandra. The works have identified human burial practice and interment within the graveyard and under the floor of the vestry. The top of one crypt was observed in the churchyard for a soakaway, and a second crypt within

the choir vestry containing two leather-clad coffins are likely to be those of Sir Edward Turner and his wife.

6) Groundworks for a new exterior pipe and internal test pits for new flooring works uncovered interments, burial chambers and remnant flooring. The exterior work identified 10 partially articulated graves and skeletons thought to be probably Post Medieval, possibly Medieval, in date. Three brick-line crypts were located, dated no earlier than C18. A large quantity of disarticulated human bone, as well as Medieval and post Medieval pottery was found. One of the internal test pits identified a small patch of surviving mortared bedding for a previous floor and another location uncovered an interment, probably of C18 date. A small collection of Medieval and Post Medieval floor tiles were recovered from the test pits.

7) The work, as in the previous years of investigation, unsurprisingly uncovered human burials and crypt structures within the graveyard. Disarticulated bones were recovered from all the test pits, and a five graves (only four had human bone) were found during excavation of a soakaway to the south-west of the church. All human bone was retained by the church, but the pottery evidence as with some of the graves found in 2013, suggest Medieval burial is preserved in this historic graveyard. The grave (202) uncovered here is particularly deep (>1.5m) suggesting that 19th-century use of the graveyard could still have preserved earlier burials at greater depth. Two crypts were uncovered in the southern church path. These were both

recorded and in filled. The investigation of the foundation of the church found it to be in a poor state in some areas especially on the exterior buttress of the south aisle. The porch buttress in the north-east was only 0.5m deep.

<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/24, p.11 (Index). SOX260.

<2> CBA South Midlands Group, South Midlands Archaeology, Vol 15 (1985) p.114 (Serial). SOX5.

<3> OAU Newsletter, Vol XI No 4 December 1984 p.2 (Article in serial). SOX270.

<4> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<5> Thames Valley Archaeological Services, 2012, St Edburg's Church, Bicester: Archaeological Watching Brief (Unpublished document). SOX2927.

<6> Thames Valley Archaeological Services, 2013, St Edburg's Church, Bicester, Oxfordshire: Archaeological Watching Brief (Unpublished document). SOX3091.

<7> CBA South Midlands Group, South Midlands Archaeology, Vol 43 (2013) p.75 (Serial). SOX5.

<8> Thames Valley Archaeological Services, 2016, St Edburg's Church, Church Street, Bicester, Oxfordshire: Archaeological Watching Brief (Digital archive). SOX5638.

<b>Site Number</b>	45
<b>Site Name</b>	? Roman Stone Foundations
<b>Type of Site</b>	Foundations
<b>NMRS Number</b>	
<b>HER Number</b>	3058
<b>Status</b>	Non-designated
<b>Easting</b>	457150
<b>Northing</b>	220800
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Apparent remains of ?Roman foundations found in 1841 BUILDING (Roman - 43 AD? to 409 AD?)

Evidence SUB SURFACE DEPOSIT

No other details

<1> Oxford Architectural & Historical Society, Oxoniensia, Vol I (1939) p.282, fig 19 (Serial). SOX284.

? Roman Stone Foundations

Site Name

Monument

Sources

Finds - None recorded

Address/Historic Names - None recorded

Associated Events/Activities - None recorded

Associated Individuals/Organisations - None recorded

Other Statuses and Cross-References

Administrative Areas

National Grid Reference

SP 5715 2080 (point) SP52SE

Associated Designations

<b>Site Number</b>	46
<b>Site Name</b>	? Roman Stone Foundations, ? Villa
<b>Type of Site</b>	Villa
<b>NMRS Number</b>	
<b>HER Number</b>	3059
<b>Status</b>	Non-designated
<b>Easting</b>	457400
<b>Northing</b>	220650
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Traces of foundations visible in 1841. Winged corridor building shown as red cropmark on map cannot be verified; area of foundations should be regarded as within circle. Not visible on recent AP. BUILDING (Roman - 43 AD to 409 AD) Evidence SUB SURFACE DEPOSIT 2) Insufficient information to be classified as a villa for MPP <1> Victoria County History of Oxford, Vol I (1939) p.282, fig 19 (Serial). SOX252. <2> MPP Documents for Oxfordshire, S Lisk (Index). SOX259. <3> Professional Judgement, S Lisk, 30.12.92 (Unpublished note). SOX275. <4> 1991, Geonex Aerial Photographs, 4691-252 (Photograph). SOX333. <5> Oxfordshire County Council, 1961, Fairey Aerial Surveys, 6125/11.095 (Photograph). SOX264.

<b>Site Number</b>	47
<b>Site Name</b>	? Romano/British Inhumation
<b>Type of Site</b>	Inhumation
<b>NMRS Number</b>	
<b>HER Number</b>	3065
<b>Status</b>	Non-designated

## Site Gazetteer



**Easting** 457380  
**Northing** 220570  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Inhumation found during non-archaeological trenching by D. Watts in 1962  
BURIAL (Roman - 43 AD to 409 AD)  
Evidence SUB SURFACE DEPOSIT  
No more details  
<1> Local Informant as main provider of information, D Watts to M Aston, 1972 (Verbal communication). SOX277

**Site Number** 48  
**Site Name** Roman Samian Pottery  
**Type of Site** Pottery  
**NMRS Number**  
**HER Number** 3066  
**Status** Non-designated  
**Easting** 457410  
**Northing** 220520  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Samian ware found during non-archaeological trenching by D. Watts c.1972  
FINDSPOT (Roman - 43 AD to 409 AD)  
Evidence SUB SURFACE DEPOSIT  
No more details  
<1> Local Informant as main provider of information, D Watts to M Aston, 1972 (Verbal communication). SOX277.

**Site Number** 49  
**Site Name** ? Roman Cremation  
**Type of Site** Cremation  
**NMRS Number**  
**HER Number** 3067  
**Status** Non-designated  
**Easting** 457440  
**Northing** 220470  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Cremation found in 1962 by D. Watts during non-archaeological trenching  
CREMATION (Roman - 43 AD? to 409 AD?)  
Evidence SUB SURFACE DEPOSIT  
No more details  
<1> Local Informant as main provider of information, D Watts to M Aston, 1972 (Verbal communication). SOX277.

## Site Gazetteer



communication). SOX277.

**Site Number** 50  
**Site Name** Roman Finds (junction of Akeman Street and N-S Roman road)  
**Type of Site** Finds  
**NMRS Number**  
**HER Number** 4462  
**Status** Non-designated  
**Easting** 457270  
**Northing** 220780  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Pottery, iron, bronze strips and bone found beneath and among the roots of a blown down tree in 1976.  
FINDSPOT (Roman - 43 AD to 409 AD)  
Evidence SUB SURFACE DEPOSIT  
(1) Found beneath and among the roots of a blown down tree in 1976  
(2) Identified as R/B greywares, Samian and red and white fabricated Oxford fabrics, some colour coated including a beaker base and small fine mortaria. Some late I/A or Roman period IA style fabrics  
(3) Excavation by R T Rowley in 1983 to trace possible line of Akeman Street and evidence of occupation. Pits and ditches of the late C1st to late C2nd indicated extensive drainage works, abandoned early C3rd. No trace of Akeman Street  
(4) c.400m north of Alchester, limited excavation on north side of presumed Akeman Street revealed pits and E-W ditches. One ditch had pit with oak plank and nails in it. Gravel bank found and C1st/2nd artefacts.  
(7) Letter explaining source and location of finds. List of finds at Ashmolean provided.  
<1> Local Informant as main provider of information, Mr Forrest, Horton-cum-Studley (1976) (Verbal communication). SOX277.  
<2> Field Notes/Field Visit, R A Chambers, OAU (1976). See inventory of finds in DRF (Unpublished document). SOX261.  
<3> Oxford Architectural & Historical Society, Oxoniensia, Vol XLIX (1984) pp.24-46.  
Excavations at Faccenda Chicken Farm near Alchester (Serial). SOX284.  
<4> Britannia, Vol XV (1984) p.302. See CAS Lib: Vale 42 (Serial). SOX282.  
<5> Slide Cabinet, 3 of 1983 excavations (Photograph). SOX303.  
<6> OAU Newsletter, Vol X No 2 June 1983 p.6; Vol X No 3 September 1983 pp.5-6 (Article in serial). SOX270.  
<7> 2002, Personal Comment, Correspondence about finds (Unpublished note). SOX621.

**Site Number** 51  
**Site Name** ? Roman Linear Earthwork (almost parallel to N-S Roman road)  
**Type of Site** Earthwork  
**NMRS Number**  
**HER Number** 4464  
**Status** Non-designated



## Site Gazetteer



<b>Easting</b>	457350
<b>Northing</b>	221000
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shows as a ridge almost a foot high in a pasture field LINEAR FEATURE (Unknown to Roman) Evidence EARTHWORK ROAD? (Roman - 43 AD? to 409 AD?) Evidence EARTHWORK (2) Possibly represents the line of the Alchester-Towcester Roman road at this point, the modern road having been diverted slightly to the west. Much stone exposed immediately east of modern bridge, probably representing original road crossing over brook (3) Excavation at Facenda Chicken Farm in 1983 failed to show the road in this area. It was occupied exclusively with the ramifications of Roman ditches and streams (4) Transferred to Oxon History Centre. &lt;1&gt; Local Informant as main provider of information, Mr Forrest, Horton-cum-Studley (1976) (Verbal communication). SOX277. &lt;2&gt; Field Notes/Field Visit, C J Bond (1976) (Unpublished document). SOX261. &lt;3&gt; CBA South Midlands Group, South Midlands Archaeology, CBA9, NL 14 (1983) pp.33-35. S Rahtz and R T Rowley (Serial). SOX5. &lt;4&gt; Slide Cabinet, 1 of ditch taken in August 1983 (Photograph). SOX303.</p>

<b>Site Number</b>	52
<b>Site Name</b>	Roman Samian Pottery (immediately N of Roman road)
<b>Type of Site</b>	Pottery
<b>NMRS Number</b>	
<b>HER Number</b>	4935
<b>Status</b>	Non-designated
<b>Easting</b>	456990
<b>Northing</b>	220990
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>A large sherd of hemispherical bowl decorated with rosettes and figures (Drag. 37) and dating to the 2nd century AD, located beneath the roots of an upturned elm tree on the side of a ditch parallel to the Roman road PRN 8921. FINDSPOT (Roman - 43 AD to 409 AD) Evidence SUB SURFACE DEPOSIT No more details &lt;1&gt; Local Informant as main provider of information, Mr Nicholas Forrest, 1, Priory Close, Horton-cum-Studley (1976) (Verbal communication). SOX277. &lt;2&gt; Untitled Source, Pottery examined by J Rhodes, OCM (Artefact Identification). SOX1068.</p>

<b>Site Number</b>	53
<b>Site Name</b>	Roman Scale Armour (in field N of North Wall of Alchester)

## Site Gazetteer



<b>Type of Site</b>	Armour
<b>NMRS Number</b>	
<b>HER Number</b>	10799
<b>Status</b>	Non-designated
<b>Easting</b>	457230
<b>Northing</b>	220500
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Piece of scale armour (lorica squamata) consisting of 4 linked bronze plates. FINDSPOT (Roman - 43 AD to 409 AD) Evidence FIND No more details &lt;1&gt; Local Informant as main provider of information, M Farley, Bucks County Museum (1977) (Verbal communication). SOX277.</p>

<b>Site Number</b>	54
<b>Site Name</b>	Roman Trackway and Farmstead
<b>Type of Site</b>	Farmstead
<b>NMRS Number</b>	
<b>HER Number</b>	11214
<b>Status</b>	Non-designated
<b>Easting</b>	457700
<b>Northing</b>	222100
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Geophysical survey found complex of linear and discrete cut features which may form settlement enclosures. Evaluation confirmed presence of C1-2 RB low status farmstead BOUNDARY DITCH (Roman - 43 AD to 409 AD) Evidence FIND Evidence SUB SURFACE DEPOSIT FARMSTEAD? (Roman - 43 AD to 409 AD) Evidence CROPMARK Evidence SUB SURFACE DEPOSIT FENCE (Roman - 43 AD to 409 AD) Evidence SUB SURFACE DEPOSIT TRACKWAY (Roman - 43 AD to 409 AD) Evidence CROPMARK (1) Cropmarks interpreted as undiagnostic ?trackway that may be related to modern agricultural practice (2) Magnetic susceptibility survey and magnetometer survey found complex of linear and discrete cut features which may form enclosures comprising a small settlement site with outer ditch on NE side (3) Evaluation of 18 trenches revealed concentration interpreted as RB low status farmstead of C1st-C2nd; few sherds of LIA and AS material found. Outbuildings interpreted as stock management features. (4) AP plotted onto 1:10000 OS Map. Text makes no further comment. See report for AP plots. (5) 1961 AP series was examined during the Cherwell District cropland survey. Trackway is visible.</p>

6) Faint indications of the trackway were observed in SP5721/6 - NMR 15332/15 during Cherwell District cropmark survey.  
 7) Number of possible structures dating to Roman period were identified, including one with substantial square shaped postholes. Few sherds of MIA and AS pottery were found indicating that the area had some evidence of use in these periods.  
 <1> 2002, Personal Comment, H Coddington, 25.7.97 (Unpublished note). SOX621.  
 <2> Stratascan, 1997, A Report for University Of Birmingham Field Archaeology Unit on a Geophysical Survey Carried out at Whitelands Farm, Bicester Leisure Park (Unpublished document). SOX841.  
 <3> Oxford Archaeology, 2002, Evaluation of proposed Community Hospital, Bicester (Unpublished document). SOX839.  
 <4> Air Photo Services Ltd, 2005, Land southwest of Bicester, Oxfordshire: Interpretation of Aerial Photographs for Archaeology (Unpublished document). SOX1735.  
 <5> Oxfordshire County Council, 1961, Fairey Aerial Surveys, 12.015 (Photograph). SOX264.  
 <6> English Heritage, NMR Aerial Photographs (Photograph). SOX294.  
 <7> CBA South Midlands Group, South Midlands Archaeology, vol 33 (2003), p 74 (Serial). SOX5.

<b>Site Number</b>	55
<b>Site Name</b>	Roman Cremation (land NE of Alchester)
<b>Type of Site</b>	Cremation
<b>NMRS Number</b>	
<b>HER Number</b>	14001
<b>Status</b>	Non-designated
<b>Easting</b>	457600
<b>Northing</b>	220450
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Inspection of an excavation for a new drainage ditch on behalf of English Heritage revealed traces of cremation and animal bone found in area which was probably marshy and used mainly as a dumping ground in the Roman period.                  CREMATION (Roman - 43 AD to 409 AD)                  Evidence SUB SURFACE DEPOSIT                  No more details                  &lt;1&gt; CBA South Midlands Group, South Midlands Archaeology, CBA9 NL 17 (1987) p.100 (Serial). SOX5.                  &lt;2&gt; Additional Information in Detailed Record File, Rough notes from R A Chambers (1986), correspondence from English Heritage and plans (Index). SOX258.</p>

<b>Site Number</b>	56
<b>Site Name</b>	Romano-British Cemetery (Site C) at A421
<b>Type of Site</b>	Cemetery
<b>NMRS Number</b>	
<b>HER Number</b>	14292
<b>Status</b>	Non-designated
<b>Easting</b>	457080

<b>Northing</b>	221020
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Late RB cemetery                  CEMETERY (Roman - 43 AD to 409 AD)                  Evidence SUB SURFACE DEPOSIT                  2) Consisted of 30 inhumations, and is thought to be complete or almost complete. C4 date. See article for additional information and discussion.                  &lt;1&gt; Local Informant as main provider of information, Recorded on SMR by S Lisk (no date) (Verbal communication). SOX277.                  &lt;2&gt; Oxford Architectural &amp; Historical Society, Oxoniensia, Vol 66, pp 13-42: Late Roman Cemeteries in Oxon: A Review (Serial). SOX284.</p>

<b>Site Number</b>	57
<b>Site Name</b>	Roman to Post Medieval Pottery and Coins
<b>Type of Site</b>	Pottery
<b>NMRS Number</b>	
<b>HER Number</b>	15846
<b>Status</b>	Non-designated
<b>Easting</b>	457720
<b>Northing</b>	221990
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Number of finds recovered including 21 sherds of pottery, 18 pieces of brick and tile and 43 metal items at Limited R/B finds suggests that a settlement was located nearby.                  FINDSPOT (Roman to Post Medieval - 43 AD to 1900 AD)                  Evidence FIND                  (1) Stripping of area did not reveal any features, and only 1 R/B sherd. Informal examination by a member of Oxford Metal Detector Society yielded 21 sherds of pottery (6 R/B, 2 medieval, 13 post medieval), 18 post medieval pieces of brick and tile and 43 metal items (1 R/B coin, 1 medieval coin, miscellaneous tokens and objects of medieval date). Very limited R/B finds confirm the nearby presence of a settlement                  (2) During construction of southern bypass in 1989 a fragment of sword from a B/A hoard was found immediately south of SP 579 219                  &lt;1&gt; Oxford Archaeological Unit, 1994, Watching brief at 'Happy Eater' Forte development, Bicester (Unpublished document). SOX842.                  &lt;2&gt; CBA South Midlands Group, South Midlands Archaeology, Vol 21 (1991) pp.100-101. R A Chambers (Serial). SOX5.                  &lt;3&gt; CBA South Midlands Group, South Midlands Archaeology, Vol 25 (1995) p.49 (Serial). SOX5.</p>

<b>Site Number</b>	58
<b>Site Name</b>	Roman Settlement on Oxford Road
<b>Type of Site</b>	Settlement
<b>NMRS Number</b>	

## Site Gazetteer



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<b>HER Number</b>	15867
<b>Status</b>	Non-designated
<b>Easting</b>	458400
<b>Northing</b>	221710
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Remains of a low status rural R-B settlement located. Possibility of water management on site. SETTLEMENT (Roman - 43 AD to 409 AD) Evidence SUB SURFACE DEPOSIT Trial trenching revealed presence of previously unknown RB settlement over easter 1/3 of site. Geophysical surveys not done. (1) Extensive survival of LIA and RB settlement within the floodplain of Langford Brook. Features all preserved under post Roman alluvium, and interpreted as 2 phases based on stratigraphy and pottery. Phase 1 is dated to AD 20/30 to 60/70, and Phase 2 to AD 60/70 to 100/120. Interpreted as low status rural site typical of Upper Thames region in LIA and early RB period when increasing agricultural intensification required use of previously unused land (2) <1> Birmingham University Field Archaeology Unit, 1993, An Archaeological Evaluation at Oxford Road, Bicester, Oxfordshire (Unpublished document). SOX636. <2> Birmingham University Field Archaeology Unit, 1995, An Archaeological Excavation at Oxford Road, Bicester, Oxfordshire (Unpublished document). SOX637.

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<b>Site Number</b>	59
<b>Site Name</b>	Iron Age Pottery (Junction of Akeman Street and N/S Roman Road)
<b>Type of Site</b>	Pottery
<b>NMRS Number</b>	
<b>HER Number</b>	4469
<b>Status</b>	Non-designated
<b>Easting</b>	457270
<b>Northing</b>	220810
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Late Iron age pottery was found beneath the roots of a tree along with a quantity of R-B pottery (PRN 4462). FINDSPOT (Late Iron Age to Roman - 100 BC to 409 AD) Evidence FIND No more details <1> Local Informant as main provider of information, Mr Nicholas Forrest, 1, Priory Close, Horton-cum-Studley (Verbal communication). SOX277. <2> Local Informant as main provider of information, Pottery identified by R A Chambers (OAU) (Verbal communication). SOX277.

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<b>Site Number</b>	61
<b>Site Name</b>	Neolithic Axehead

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## Site Gazetteer



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<b>Type of Site</b>	Findspot
<b>NMRS Number</b>	
<b>HER Number</b>	7505
<b>Status</b>	Non-designated
<b>Easting</b>	458360
<b>Northing</b>	221370
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	The butt-end of polished stone axe-head, found in 1989 in connection with the Thames Water Authority FINDSPOT (Neolithic - 4000 BC to 2351 BC) Evidence FIND 1) Length - 98mm, width - 65mm 2) Form discarded as all inforamtion added to this record. After request by D Dawson, the Standlake curator, the axe was donated to the museum. <1> Local Informant as main provider of information, Mr Greenaway (finder), Ashampton Common, Pangbourne (1990) (Verbal communication). SOX277. <2> Local Informant as main provider of information, Examined by D Dawson, OCM (1990) (Verbal communication). SOX277.

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<b>Site Number</b>	62
<b>Site Name</b>	Anglo Saxon Pottery (Field E of Manor Farm)
<b>Type of Site</b>	Pottery
<b>NMRS Number</b>	
<b>HER Number</b>	11878
<b>Status</b>	Non-designated
<b>Easting</b>	458200
<b>Northing</b>	222510
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	North of Bicester House, two sherds of Anglo-Saxon pottery of a fabric normally associated with the mid-Saxon period were found. FINDSPOT (Early Medieval/Dark Age - 410 AD to 1065 AD) Evidence FIND 1) Housing development in Close north of Bicester House revealed no evidence of Anglo Saxon occupation. No clear archaeological view was obtained <1> CBA South Midlands Group, South Midlands Archaeology, CBA9, NL 10 (1980) p.169; NL 16 (1986) p.95 (Serial). SOX5.

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<b>Site Number</b>	63
<b>Site Name</b>	Roman and Anglo Saxon Settlement Evidence from the Causeway
<b>Type of Site</b>	Settlement

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## Site Gazetteer



<b>NMRS Number</b>	
<b>HER Number</b>	16268
<b>Status</b>	Non-designated
<b>Easting</b>	458430
<b>Northing</b>	222310
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Evaluation revealed Roman pottery indicative of high status settlement, and confirmed marshy nature of town in C10th-11th. First attempt at land reclamation occurred in C14th-15th with further raising of land in C17th.</p> <p>FINDSPOT (Roman to Early Medieval/Dark Age - 43 AD to 1065 AD)</p> <p>Evidence FIND</p> <p>PIT (Early Medieval/Dark Age - 410 AD to 1065 AD)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>Evaluation of site proposed for residential development added important information on the development of the area over the last millennium. The finding of further sherds of Roman pottery in late deposits added to earlier finds of same in town centre, as well as presence of relatively high status Roman settlement in vicinity of Chapel St and Market Square. Confirmed earlier findings that this area was marshy in C10-11, when rubbish dumped in marsh. 1st attempt at land reclamation in C14-15, with further raising of land in C17 (1).</p> <p>&lt;1&gt; John Moore Heritage Services, 2000, An Archaeological Evaluation on land to the rear of Nos 3,5, and 9-13 Causeway, Bicester, Oxfordshire (Unpublished document). SOX736.</p>

<b>Site Number</b>	64
<b>Site Name</b>	Land Between Causeway and Bryon House
<b>Type of Site</b>	Land
<b>NMRS Number</b>	
<b>HER Number</b>	16136
<b>Status</b>	Non-designated
<b>Easting</b>	458430
<b>Northing</b>	222250
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Evaluation of area between 2 Saxon/Medieval settlements revealed low-lying marshy land prone to flooding. Causeway designed to span marshy area and link two settlement areas. Only Post Medieval material found.</p> <p>CAUSEWAY (Post Medieval - 1540 AD to 1900 AD)</p> <p>Evidence MODIFIED SURFACE</p> <p>Evaluation proved that area evaluated behind the garden of 17 Causeway was not in use prior to the Post Med period and no remains of any importance are present. Due to inability to be able to excavate a trench adjacent to 17 Causeway, the date and construction methodology of the Causeway and reclamation of the land immediately to the S remains unknown. Recommended that WB maintained during subsequent development works (1).</p> <p>&lt;1&gt; John Moore Heritage Services, 1999, An Archaeological Evaluation at Land between the Causeway and Bryon House, known as Vine Cottages, Bicester, Oxfordshire (Unpublished document). SOX735.</p>

## Site Gazetteer



<b>Site Number</b>	65
<b>Site Name</b>	Possible Anglo Saxon Inhumation Cemetery at Church of the Immaculate Conception
<b>Type of Site</b>	Inhumation
<b>NMRS Number</b>	
<b>HER Number</b>	16254
<b>Status</b>	Non-designated
<b>Easting</b>	458330
<b>Northing</b>	222360
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>During stripping for church car park, human remains were uncovered just below the topsoil (approx 30 cms below ground surface). Graves were encountered in the subsequent phase of watching brief/excavation; two were dated to Middle Saxon period</p> <p>LINEAR FEATURE (Unknown date)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>INHUMATION CEMETERY (Early Medieval/Dark Age - 410 AD? to 1065 AD?) + Sci.Date</p> <p>Sci. Date:</p> <p>Evidence FIND</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>665 +/- 23 RadioCarbon Date Determined: 2011</p> <p>685 +/- 25 RadioCarbon Date Determined: 2011</p> <p>SETTLEMENT (Early Medieval/Dark Age to Medieval - 410 AD to 1539 AD)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>1) Site visit revealed E-W grave cut alignments, possibly from 2 phases. Several skulls and 1 inhumation visible. Cemetery probably extends in all directions. No grave goods. Faced limestone wall, in NW corner and circular stone-lined feature in SW corner (?well) were only other features. Dated by single sherd (mid-late Saxon) found in association with wall. May relate to</p> <p>priory (C12th) or minster (C10th) usage. 28 graves identified definitely more. See DRF</p> <p>2) See J Blair discussion of early minster and town development</p> <p>4) Three shallow features were investigated, one of natural, the other two of uncertain origin. A single sherd of Early to Middle Saxon pottery and some animal bone was recorded but no human burial deposits were observed. Site clearly has archaeological potential with its proximity to the cemetery, and the presence of animal bone and the single Saxon sherd</p> <p>5) Watching brief in 2011 revealed a number of archaeological features, the most significant of which was an eastwards extension of a known Anglo Saxon inhumation cemetery. 15 bodies were found, 9 articulated and 6 disarticulated; most were definitely or probably older women. It is unclear how long the cemetery was in use, but it is clear that the graves were not marked by headstones. At least 2 of the burials were subject to radiocarbon dating and were found to be of Middle Saxon date (C7) and possibly associated with the minster to the south, though any definite link remains unproven. Early medieval occupation features (a ditch probably to protect against flooding) were revealed indicating settlement from possibly as early as the C10 but no clear evidence of Saxon settlement was found</p> <p>&lt;1&gt; Field Notes/Field Visit, S Weaver, 11.5.00 and 12.5.00. See report in DRF (Unpublished document). SOX261.</p> <p>&lt;2&gt; Oxford Architectural &amp; Historical Society, Oxoniensia, Vol LXVII (2002), pp 133-40 (Serial). SOX284.</p> <p>&lt;3&gt; Slide Cabinet, view of excavated area (Photograph). SOX303.</p> <p>&lt;4&gt; Thames Valley Archaeological Services, 2010, New Parish Rooms, Church of the Immaculate Conception, The Causeway: Archaeological Evaluation (Unpublished document). SOX2538.</p> <p>&lt;5a&gt; CBA South Midlands Group, South Midlands Archaeology, SMA 41 (2011) 58 (Serial). SOX5.</p> <p>&lt;5&gt; Thames Valley Archaeological Services, 2011, New Parish Rooms, Church of the Immaculate Conception, The Causeway, Bicester, Oxfordshire: Archaeological Watching Brief (Unpublished document).</p>

# Site Gazetteer



SOX2716.

<b>Site Number</b>	66
<b>Site Name</b>	No 24, Sheep Street
<b>Type of Site</b>	Workshop
<b>NMRS Number</b>	1046473
<b>HER Number</b>	551
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458500
<b>Northing</b>	222400
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>House, now shop and dwelling. 1689 on datestone, remodelled and extended mid C19. BLACKSMITHS WORKSHOP (Post Medieval - 1540 AD to 1900 AD)            Evidence EXTANT BUILDING            SP5822N, SP5822S BICESTER SHEEP STREET            2/106, 3/106 (East side)            20/03/70 No 24            GV II</p> <p>House, now shop and dwelling. 1689 on datestone, remodelled and extended mid C19. Rendered walls with stucco dressings; brick and limestone rubble; plain-tile and Welsh-slate roofs. 2 parallel ranges plus long rear wing. 2 storeys plus attics and 2 storeys. Rendered 3-window front has a plain parapet, with ball finials, rising from a moulded band, and has firstfloor casements with eared architraves and triangular pediments above panelled friezes, probably all C19. The short right return wall to No.22 (not included) has a similar window. Ground floor is mostly a shop front, but to extreme left is a section of rusticated walling containing a large 6-panelled doorway, above which is a datestone inscribed "R/IM/1689". Steep-pitched roof with a shallower slated roof to rear. Rear is mostly C19 but rear range incorporates the gable of a former stair project ion. Rubble and brick rear wing is of several builds. Interior: chamfered beams in alleyway. (Buildings of England: Oxfordshire, p.456).            Listing NGR: SP5854622496            &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 2/106, p.51 (Index). SOX260.            &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	67
<b>Site Name</b>	Site of Bell Foundry
<b>Type of Site</b>	Foundry
<b>NMRS Number</b>	
<b>HER Number</b>	909
<b>Status</b>	Non-designated
<b>Easting</b>	458400
<b>Northing</b>	222600

# Site Gazetteer



<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Edward Hemins foundry at Bicester 1728-43. He supplied bells to Oriel College etc. MARGINAL            No more details            &lt;1&gt; 1953, Oxford Record Society, Vol XXXIV (1953) (Monograph). SOX741.            &lt;2&gt; General reference, F Sharpe: 'The Church Bells of Oxon' Vol IV (Bibliographic reference). SOX373</p>

<b>Site Number</b>	68
<b>Site Name</b>	Ridge and Furrow Marks
<b>Type of Site</b>	Ridge and Furrow
<b>NMRS Number</b>	
<b>HER Number</b>	16310
<b>Status</b>	Non-designated
<b>Easting</b>	457760
<b>Northing</b>	220990
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Site situated close to Roman town of Alchester, but no evidence to suggest Roman-British activity in this area. Ridge and furrow marks suggest ?Medieval arable cultivation.            RIDGE AND FURROW (Medieval - 1066 AD to 1539 AD?)            Evidence EARTHWORK            &lt;1&gt; Foundations Archaeology, 1996, Bicester Sewage Treatment Works, Bicester, Oxfordshire (Unpublished document).            SOX1239.</p>

<b>Site Number</b>	69
<b>Site Name</b>	Iron Age to Roman Farmstead at SW Bicester
<b>Type of Site</b>	Farmstead
<b>NMRS Number</b>	
<b>HER Number</b>	16541
<b>Status</b>	Non-designated
<b>Easting</b>	457710
<b>Northing</b>	222210
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Trenching revealed cobbled surface of Roman date awa Roman ditches, possibly associated with farmstead. All trenches in NE of site yield nothing and were presumed to be waterlogged since Roman times.            FARMSTEAD (Late Iron Age to Roman - 100 BC to 409 AD)            Evidence FIND            Evidence SUB SURFACE DEPOSIT            DITCH (Roman - 43 AD to 409 AD)            Evidence FIND</p>

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Evidence SUB SURFACE DEPOSIT  
 FEATURE (Roman - 43 AD to 409 AD)  
 Evidence FIND  
 Evidence SUB SURFACE DEPOSIT  
 2) Aps plotted onto 1:10000 OS Map, text gives no further comment  
 3) Evaluation revealed a concentration of archaeological features in the central area of the site. A number of possible structures dating to the Roman period were identified including one with substantial square shaped postholes. Two other concentrated clusters of smaller postholes were recorded which might represent additional buildings or possibly stock management features or fence lines. Some spreads of occupation material, pits and numerous enclosure or or boundary ditches were seen. The site is interpreted as a low status farmstead occupied during the late C1st and C2nd. A few sherds of MIA and AS pottery were also recovered indicating that the area had seen activity in these periods  
 <1> Oxford Archaeology, 2002, Evaluation of land adjoining Middleton Stoney Rd and Oxford Rd, Bicester (Unpublished document). SOX840.  
 <2> Air Photo Services Ltd, 2005, Land southwest of Bicester, Oxfordshire: Interpretation of Aerial Photographs for Archaeology (Unpublished document). SOX1735.  
 <3> CBA South Midlands Group, South Midlands Archaeology, Vol 33 (2003) p.74 (Serial). SOX5.

<b>Site Number</b>	70
<b>Site Name</b>	Possible Roman Ditch
<b>Type of Site</b>	Ditch
<b>NMRS Number</b>	
<b>HER Number</b>	16701
<b>Status</b>	Non-designated
<b>Easting</b>	458020
<b>Northing</b>	222290
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Possible Roman ditch found in evaluation. DITCH (Roman - 43 AD to 409 AD) Running E-W; dated by single abraded sherd of Roman greyware. Could be element of Roman field system and relate to known possible Roman farmstead located immediately to SW of site. <1> Thames Valley Archaeological Services, 2003, Bicester Cottage Hospital, Kings End, Bicester - Evaluation report (Unpublished document). SOX338.

<b>Site Number</b>	71
<b>Site Name</b>	Nos 29/29a Market Square, Bicester
<b>Type of Site</b>	Building
<b>NMRS Number</b>	
<b>HER Number</b>	16723
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458490
<b>Northing</b>	222340
<b>Parish</b>	Bicester

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<b>Council</b>	Cherwell District Council
<b>Description</b>	16th/17th century timber framed building with later 18th and 19th century additions. Grade II listed. BUILDING (16th/17th century with later additions, Medieval to Post Medieval - 1500 AD to 1900 AD) Evidence EXTANT BUILDING Grade II listed building, described in greenback as early 18th century shop and dwelling (1) but building survey undertaken in 1998 suggests timber framed core dating from 16th/17th century (2) <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest (Index). SOX260. <2> Phoenix Consulting, 1998, Report on Programme of Building Recording and Investigation: 29/29a Market Square, Bicester, Oxfordshire (Unpublished document). SOX393.

<b>Site Number</b>	72
<b>Site Name</b>	Medieval features marking edge of King's End
<b>Type of Site</b>	Features
<b>NMRS Number</b>	
<b>HER Number</b>	16933
<b>Status</b>	Non-designated
<b>Easting</b>	458390
<b>Northing</b>	222297
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	C11-14 features (pit, ditch, wall) found which marked edge of King's End, one of two settlement foci in Bicester. DITCH (Medieval - 1066 AD to 1539 AD) PIT (Medieval - 1066 AD to 1539 AD) WALL (Medieval - 1066 AD to 1539 AD) 1) WB produced valuable information of the use and development of this part of Bicester and compliments previous work in the area. A late C11 pit was found under the S part of Vine Cottages, and probably indicates the E limit of the medieval settlement of King's End. This area was subsequently cultivated in the C12 to early/mid C13. A large ditch was subsequently dug in later C13 and continued in use no lter than mid C14. The E-W range of Vine Cottages respects this former boundary which can be traced further W. Slightly further north the limit of properties fronting Causeway on the W of the site was discvoered. This was marked by a change in cultivation type and then by a wall; this wall also marked the E side of a plot which was respected by the NW-SE range of Vine Cottages. Material raising the level of the land adjacent to the Causeway is thought to date to C17. The foundations for the recelty demolished cottage on this frontage were founded on this material . No earlier buildings were present <1> John Moore Heritage Services, 2005, An Archaeological Watching Brief at Vine Cottages, Causeway, Bicester, Oxfordshire (Unpublished document). SOX1446.

<b>Site Number</b>	73
<b>Site Name</b>	Later Prehistoric to Medieval Features from Priory
<b>Type of Site</b>	Features

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<b>NMRS Number</b>	
<b>HER Number</b>	16990
<b>Status</b>	Non-designated
<b>Easting</b>	458468
<b>Northing</b>	221974
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	A number of Medieval ditches, and artefacts from Later Prehistoric to Roman periods were recorded. DITCH (Unknown date) BOUNDARY DITCH (Medieval - 1066 AD to 1539 AD) 1) Two medieval ditches recorded that appear to define burgrave plots. The rest of the site appears to be devoid of archaeology suggesting the site was too wet to be occupied. Roman pottery and a single struck flake were recovered. Good archaeological potential to the N. <1> Thames Valley Archaeological Services, 2006, Land of Priory Road, Bicester, Oxfordshire 2005 (phase 1): An Archaeological Evaluation (Unpublished document). SOX1673.

<b>Site Number</b>	74
<b>Site Name</b>	NO 16 (THE OLD MANOR HOUSE), KINGS END
<b>Type of Site</b>	Farmhouse
<b>NMRS Number</b>	1199967
<b>HER Number</b>	18960
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458238
<b>Northing</b>	222409
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Farmhouse, now house. Late C17/early C18 HOUSE (Now, Undated) SITE (Unknown date) Covering Building Material TILE Main Building Material LIMESTONE Main Building Material RUBBLE FARMHOUSE (Late C17, Post Medieval - 1667 AD to 1699 AD) FARMHOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD) SP5822S BICESTER KINGS END (North side) 3/39 No.16 (The Old Manor House) 31/01/52 (Formerly listed as Manor Farmhouse) GV II Coursed squared limestone and coursed rubble, both with wooden lintels; plain-tile roof with brick end stacks. T-plan with subsidiary range. 2 storeys plus attic. Symmetrical 5-window front

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of principal range has a deep plaster eaves cove and 4- pane C19 sashes, at ground floor with stop-chamfered lintels; the 4-panel central door has a rectangular overlight and a slated wooden porch with flanking settles. Roof has flanking stacks, to left rising from a large chimney projection, and has 2 gabled roof dormers. Rubble range extending to right is a separate built and has 3-light casements (2 at first floor and one at ground floor) all with stop-chamfered lintels and some lights with leaded glazing. 2-window rear wing has leaded 2-light casements, larger at first floor, and a plank door facing right. Rear of main range is all of rubble and has no vertical joint line. Interior not inspected. (V.C.H.: Oxfordshire, Vol.VI, p.20). Listing NGR: SP5820622453  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/39, p.18 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.  
<3> Thames Valley Archaeological Services, 2005, Manor Farm, King's End: Building Survey (Unpublished document). SOX2780.

<b>Site Number</b>	75
<b>Site Name</b>	WALL TO GROUNDS OF BICESTER HOUSE
<b>Type of Site</b>	Wall
<b>NMRS Number</b>	1200026
<b>HER Number</b>	18961
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458181
<b>Northing</b>	222411
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Park wall and gateway. Probably partly C18, raised C18/C19; gateway C20# SITE (Unknown date) Main Building Material LIMESTONE Main Building Material MARLSTONE Main Building Material RUBBLE Main Building Material WROUGHT IRON PARK WALL (C18, Post Medieval - 1700 AD to 1799 AD) PARK WALL (C19, Post Medieval - 1800 AD to 1899 AD) GATE (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER KINGS END (North side) 3/41 Wall to grounds of Bicester House from junction with Queens Avenue to approx. 150m. E GV II Limestone rubble with flat marlstone coping. Wall is approximately 2.5 metres high, and extends from an angled section at the junction with Queens Avenue to a point approximately 130 metres to east where it curves round and runs for

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approximately 40 metres beside the track to left of The Old Manor House (q.v.). The gateway, opposite Coker Close, is flanked by lower curving sections of wall, rebuilt C20, and has wrought-iron gates. Included for group value.

Listing NGR: SP5818122411

<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/41, p.20 (Index). SOX260.

<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	76
<b>Site Name</b>	NO 3 KINGS END
<b>Type of Site</b>	House
<b>NMRS Number</b>	1200057
<b>HER Number</b>	18966
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458189
<b>Northing</b>	222376
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House, now shop and dwelling. C17, possibly partly earlier HOUSE (Now, Undated) SHOP (Now, Undated) SITE (Unknown date) Covering Building Material THATCH Main Building Material LIMESTONE Main Building Material RUBBLE HOUSE (C17, Post Medieval - 1600 AD to 1699 AD) SP5822S BICESTER KINGS END 3/46 (South side) 20/03/70 No.3 GV II Part-coursed limestone rubble with wooden lintels; thatch roof with rubble and brick stacks. 3-unit plan. 2 storeys plus attics.3-window front has a doorway to left of centre, enlarged windows either side, and to right and at first floor has renewed 2-light casements. Left bay has vertical joints plus built-in wallplates above and below the ends of heavy joists; it probably had a jetty. Roof has stacks to left of centre and on the right gable, and has small inset dormers to rear. Interior: open fireplace with cambered chamfered bressumer; chamfered beams. Probably originally a through-passage plan. Listing NGR: SP5818922376 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/46, p.22 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

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<b>Site Number</b>	77
<b>Site Name</b>	PAIR OF K6 TELEPHONE KIOSKS
<b>Type of Site</b>	Telephone Kiosks
<b>NMRS Number</b>	1046435
<b>HER Number</b>	26010
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458510
<b>Northing</b>	222388
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Pair of telephone kiosks designed by GG Scott TELEPHONE BOX (1935, Modern - 1901 AD to 2050 AD) Evidence STRUCTURE SP 5822 BICESTER MARKET SQUARE 3/115 (North west side) Pair of K6 Telephone Kiosks GV II Made by various contractors. Cast iron. Square kiosk with domed roof. Unperforated crowns to top panels and margin glazing to windows and doors. Listing NGR: SP5851022388 Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/115, p.44(a) (Index). SOX260. 33 Market Square, Bicester, Oxfordshire, OX6 7AG PAIR OF K6 TELEPHONE KIOSKS

<b>Site Number</b>	78
<b>Site Name</b>	NOS 46, 48 & 51 MARKET SQUARE
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046457
<b>HER Number</b>	18983
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458556
<b>Northing</b>	222377
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shown as Nos.46, 47 and 51 on Ordnance Survey map. Substantial town house, now shop. Early/mid C17 (possibly partly earlier) and late C17 JETTIED HOUSE (Undated) SHOP (Now, Undated) SITE (Unknown date) Covering Building Material TILE Main Building Material



RENDER  
Main Building  
Material  
TIMBER  
TIMBER FRAMED HOUSE (Early/mid C17, Post Medieval - 1600 AD to 1666 AD)  
TOWN HOUSE (Early/mid C17, Post Medieval - 1600 AD to 1666 AD)  
TOWN HOUSE (Late C17, Post Medieval - 1667 AD to 1699 AD)  
SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SP5822S BICESTER MARKET SQUARE  
3/64 Nos.46, 48 and 51  
31/01/52  
GV II  
Part-rendered timber framing; old plain-tile roofs with brick stacks. Double-depth plan, extended to front and rear. 2 storeys plus attics and 3 storeys. Double-gabled 3-storey east front, in exposed light framing, is late C17 and has 3 renewed cross windows to both upper floors, all with C20 lattice glazing; a simple wooden pallisade running between the gables rises above a moulded wooden cornice. A deep contemporary jetty, at first floor only, spans the alleyway to right and rests on long braces. To left, the one-bay return to the earlier range also has renewed cross windows plus a similar C20 shop front.  
Double-gabled central section of south front rises above a late-C19/early-C20 shop front and a very wide 5-light early-C18 window with thick glazing bars; the upper fenestration is irregular and includes a large window which is probably late C18/early C19; the westernmost gable has a scalloped bargeboard. The west front is extended by a 2-storey flat-roofed addition which projects below the 2 original gables; it is of c.1700 and has a heavy moulded wooden cornice and old horizontal-sliding sashes at first floor; ground floor has a C18 canted bay window on shaped brackets, 2 more old windows and a panelled door. The alleyway to north is also bridged at first floor at the western end by a link containing a wooden 3- light mullioned-and-transomed window with old leaded glazing, now partly penetrating into No.52 (q.v.). The gabled jettied bay facing north between the 2 links retains mid-C17 oriel windows to first and second floors, the lower being larger with decorated angle mullions and formerly with transoms, the upper with moulded mullions. At ground floor, one bracketed post is still exposed, and there are 2 panelled doors plus a window built out below the jetty; the gable retains part of a scalloped bargeboard. Interior: stop-chamfered beams, including dragon beams, in the earlier section; internal bracketed posts; 2-panel doors; dog-leg stair of c.1700 with winders, moulded closed string and handrail, and a few barleytwist-on-vase balusters. In the cellar, built into a wall, is a medieval octagonal wooden post with broach stops top and bottom. The building occupies a prominent island site. (V.C.H.: Oxfordshire, Vol.VI, p.18; Buildings of England: Oxfordshire, p.455). Listing NGR: SP5855622377  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/64, p.30 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.  
46 Market Square, Bicester, Oxfordshire, OX6 7AJ  
51 Market Square, Bicester, Oxfordshire, OX6 7AJ  
51 Market Square, Bicester, Oxfordshire, OX6 7AJ

Site Number	79
Site Name	NO 47 MARKET SQUARE
Type of Site	House
NMRS Number	1046458
HER Number	18984
Status	Listed Building- Grade II
Easting	458548

Northing 222378  
Parish Bicester  
Council Cherwell District Council  
Description Shown as No.48 on Ordnance Survey map. Substantial town house, now offices, 1698 on datestone, altered C19 and C20  
OFFICE (Now, Undated)  
SITE (Unknown date)  
Covering Building  
Material  
CONCRETE  
Covering Building  
Material  
LEAD  
Covering Building  
Material  
TILE  
Main Building  
Material  
LIMESTONE  
Main Building  
Material  
RENDER  
Main Building  
Material  
STUCCO  
Main Building  
Material  
TIMBER  
WEATHER VANE (Undated)  
DATE STONE (1698, Post Medieval - 1698 AD)  
TIMBER FRAMED HOUSE (1698, Post Medieval - 1698 AD)  
TOWN HOUSE (1698, Post Medieval - 1698 AD)  
TOWN HOUSE (C19, Post Medieval - 1800 AD to 1899 AD)  
TOWN HOUSE (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SP5822S BICESTER MARKET SQUARE  
3/65 No.47  
30/03/70  
GV II  
Rendered timber framing with stucco dressings; concrete plain-tile and lead roofs with brick stacks. Double-depth plan. 3 storeys plus attics. Symmetrical 5-window front, with storeybands and rusticated stucco quoins, has 12-pane sashes to the upper windows, and has a central projecting 4-storey tower with similar windows at first and second floors, but with 3 keyed oval windows to the top stage formed in moulded limestone-rectangular frames, the front oval blind and inscribed "B/IM/1698". The turret has a moulded wooden cornice and an ogee tiled roof topped by a ball finial and wrought-iron weathervane. The hipped roof of the main range has a central lead flat and a wooden modillion cornice which returns on both sides. Ground floor has a central doorway with a moulded segmental-arched eared stucco architrave, flanked by small-pane shop windows built out below a deep moulded cornice (probably all C20). Left side has 2 sashes per floor above a C19 ground-floor extension with a large small-pane window. Right side has some narrower sashes and some altered windows. Rear has 3 truncated stacks, each of 3 linked shafts. Interior: upper floors of tower retain a dog-leg stair with heavy moulded handrail and closed string, barleytwist-on-vase balusters, and some turned pendants. With Nos.49 and 50 (q.v.), forms a prominent group on an island site.  
(V.C.H.: Oxfordshire, Vol.VI, p.18; Buildings of England: Oxfordshire, p.455). Listing NGR: SP 58548 22377  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/65, p.31 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card

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(Photograph). SOX2063.  
47 Market Square, Bicester, Oxfordshire, OX6 7AJ

<b>Site Number</b>	80
<b>Site Name</b>	NOS 13 & 14 (THAMES HOUSE), MARKET
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046460
<b>HER Number</b>	18987
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458520
<b>Northing</b>	222400
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling, now shops and offices. Probably early C18 OFFICE (Now, Undated) SHOP (Now, Undated) SITE (Unknown date) Covering Building Material TILE Main Building Material ASHLAR Main Building Material LIMESTONE Main Building Material ROUGHCAST Main Building Material RUBBLE Main Building Material TIMBER SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD) TIMBER FRAMED HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD) SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER MARKET SQUARE (North side) 3/68 Nos.13 and 14 (Thames House) 20/03/70 (Formerly listed as Nos.13 and 14) GV II Limestone ashlar and rubble; roughcast timber framing; plain-tile roofs with brick gable stacks. Double-depth plan with short rear wing. 2 storeys plus attic. Roughcast front, with richly-moulded wooden cornice, has 4 irregularly-spaced tall windows at first floor, and has 3 flat-headed roof dormers with moulded cornices; C20 shop fronts. Left gable wall is ashlar with a pair of narrow windows at first floor. Steep-pitched 2-span roof. Rear is rubble and has a short wing returning from right end. Interior: large stair hall at first floor has an early-C19 stair with ramped handrail and turned newels. Listing NGR: SP5852022400 &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/68, p.32</p>

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(Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	81
<b>Site Name</b>	NO 17 MARKET SQUARE
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046461
<b>HER Number</b>	18989
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458498
<b>Northing</b>	222399
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling. C17 SITE (Unknown date) Covering Building Material TILE Main Building Material BRICK Main Building Material TIMBER SHOP (C17, Post Medieval - 1600 AD to 1699 AD) TIMBER FRAMED HOUSE (C17, Post Medieval - 1600 AD to 1699 AD) SP5822S BICESTER MARKET SQUARE 3/70 (North side) 20/03/70 No.17 GV II Timber framed with brick infill; old plain-tile roof. Gable-fronted plan. 2 storeys plus attic. Front has a 3-light casement at first floor and a 2-light window in the gable (both renewed) and at ground floor has a built-out shop front with a C20 bow window; to left, the entrance to an alleyway with has turned wooden column set into the wall of No.18 (q.v.) to left. A slightly higher roof to rear runs parallel with the front. Interior not inspected. Listing NGR: SP5849822399 &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/70, p.33 (Index). SOX260. &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	82
<b>Site Name</b>	NO 18 MARKET SQUARE
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046462
<b>HER Number</b>	18990

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<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458495
<b>Northing</b>	222392
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling. C18            SITE (Unknown date)            Covering Building            Material            TILE            Main Building            Material            RENDER            Main Building            Material            TIMBER            SHOP (C18, Post Medieval - 1700 AD to 1799 AD)            TIMBER FRAMED HOUSE (C18, Post Medieval - 1700 AD to 1799 AD)            SHOP (C19, Post Medieval - 1800 AD to 1899 AD)            SP5822S BICESTER MARKET SQUARE            3/71 (North side)            20/03/70 No.18            GV II            Rendered walls, probably timber framed; old plain-tile roof. Gable-fronted plan. 3 storeys.            Narrow front has 9-pane flush sashes at first and second floors; C19 shop front has arched lights and circular mullions to a canted bay window, a matching door, flanking fluted pilasters, carved brackets and a narrow canopy forming a small balcony. Low parapet returns around hipped roof. Interior not inspected.            Listing NGR: SP5849522392            &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/71, p.33 (Index). SOX260.            &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	83
<b>Site Name</b>	NOS 22 & 23 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1046463
<b>HER Number</b>	18993
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458477
<b>Northing</b>	222379
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>2 shops and dwellings. Early C19, possibly partly earlier            SITE (Unknown date)            Covering Building            Material            WELSH SLATE            Main Building</p>

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<b>Material</b>	LIMESTONE
<b>Main Building</b>	Material
<b>Material</b>	RENDER
<b>Main Building</b>	Material
<b>Material</b>	RUBBLE
<b>Main Building</b>	Material
<b>Material</b>	STUCCO
<b>HOUSE (Early C19 or earlier, Post Medieval - 1750 AD to 1832 AD)</b>	
<b>SHOP (Early C19 or earlier, Post Medieval - 1750 AD to 1832 AD)</b>	
<b>SP5822S BICESTER MARKET SQUARE</b>	
<b>3/74 (North side)</b>	
<b>20/03/70 Nos.22 and 23</b>	
<b>GV II</b>	
<b>Rendered walls with stucco dressings; limestone rubble; Welsh-slate roofs with brick stacks. Linked ranges with rear wings. 2-storey stuccoed 2-window front of No.22, with rusticated quoins and a deep moulded cornice, has tall first-floor windows with C20 frames, and a shop front retaining flanking carved consoles and a cornice to the fascia, plus wide arched spandrelled heads to the windows. Narrow 3-storey stuccoed front of No.23, to left, also has a cornice which breaks around full-height pilaster strips, and a low parapet linking with that of No.22; first floor has a canted bay window, and at second floor is a segmental-arched 16-pane sash. Ground-floor shop front has a C19 bay window with spandrelled arched heads, plus a projecting fascia on carved consoles with a moulded cornice. Shallow-pitched roof is hipped to left. Rear wings are both of rubble. Interiors not inspected.</b>	
<b>Listing NGR: SP5847722379</b>	
<b>&lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/74, p.35 (Index). SOX260.</b>	
<b>&lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</b>	

<b>Site Number</b>	84
<b>Site Name</b>	NOS 5 & 6 MARKET SQUARE
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046464
<b>HER Number</b>	18997
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458588
<b>Northing</b>	222385
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>House, now shops and offices. C17            OFFICE (Now, Undated)            SHOP (Now, Undated)            SITE (Unknown date)            Covering Building            Material            TILE            Covering Building            Material</p>

WELSH SLATE  
Main Building  
Material  
LIMESTONE  
Main Building  
Material  
RENDER  
Main Building  
Material  
RUBBLE  
HOUSE (C17, Post Medieval - 1600 AD to 1699 AD)  
SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SP5822S BICESTER MARKET SQUARE  
3/78 (East side)  
20/03/70 Nos.5 and 6  
GV II  
Part-rendered limestone rubble; plain-tile and Welsh-slate roof with brick stacks. L-plan. 2 storeys plus attics. Rendered 3- window front has a wide wing projecting from the middle and right bays, below 2 steep gables with partly-renewed moulded and scalloped bargeboards with the remains of finials. First floor has casements of 2, 2 and 3 lights, plus a 2-light window in the left return wall of the wing, and has tall narrow offset windows in the gables. A large stack rises from the central ridge, and both front gables have smaller stacks. C20 shop fronts at ground floor. Rear is rubble with a slate roof. Interior not inspected. Listing NGR: SP5858822385  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/78, p.37 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063

<b>Site Number</b>	85
<b>Site Name</b>	NOS 65 & 67 SHEEP STREET
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046475
<b>HER Number</b>	19027
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458403
<b>Northing</b>	222635
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House, now 2 shops and dwellings. Probably early C18, remodelled late C18 HOUSE (Now, Undated) SHOP (Now, Undated) SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material LIMESTONE Main Building Material RENDER Main Building

Material  
RUBBLE  
Main Building  
Material  
TIMBER  
TIMBER FRAMED HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)  
TIMBER FRAMED HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD)  
In the entry for:- SP5822N BICESTER SHEEP STREET  
2/111 (west side)  
22/07/76 Nos. 65 and 67  
GV II  
The description should be amended to read:- Rendered walls, probably partly timber framed; limestone rubble; Welsh-slate roof with brick stacks. Probable 2-unit lobbyentry plan, extended over adjoining vehicle entry and subdivided. 3 storeys. Rendered 3-window front has 2 shop windows, each with a narrow doorway to left, and has 12-pane sashes at first floor, including the added bat to right. Second floor has similar windows, aligned, except over No 65, to left, where there is a pair of sashes. There is evidence of a further first floor window above the door to No 67. Roof is slightly higher over right bay, and has stacks to right of each bay. Rear: gabled stair tower to right of centre. 2-light 1st floor window on left with timber lintel. Added lean-to on left has door and 2-light wooden casement with horizontal glazing bars. Interior: left bay on ground floor has fireplace with bressumer; upper floors not inspected. Central and right- hand bays on 1st and attic floors have C18 panelled doors and cupboards; fireplace with architrave and mantelpiece on 1st floor; winder stair up to attic. Listing NGR: SP5840322635  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 2/111, p.53 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063

<b>Site Number</b>	86
<b>Site Name</b>	NO 27 SHEEP STREET
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1046476
<b>HER Number</b>	19029
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458472
<b>Northing</b>	222520
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling, now shop and offices. Late C18/early C19 and mid C19 OFFICE (Now, Undated) SHOP (Now, Undated) SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material BRICK Main Building Material LIMESTONE

Main Building  
 Material  
 RENDER  
 Main Building  
 Material  
 RUBBLE  
 Main Building  
 Material  
 STUCCO  
 HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD)  
 SHOP (Late C18, Post Medieval - 1767 AD to 1799 AD)  
 HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)  
 SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD)  
 HOUSE (Mid C19, Post Medieval - 1833 AD to 1866 AD)  
 SHOP (Mid C19, Post Medieval - 1833 AD to 1866 AD)  
 SP5822N BICESTER SHEEP STREET  
 2/113 (West side)  
 20/03/70 No. 27  
 GV II

Coursed limestone rubble; rendered rubble-and brick-with stucco dressings; Welsh-slate roofs with brick and rendered end stacks. 2 parallel ranges. 2 storeys and 3 storeys. 2-storey stuccoed front, with plinth, storeyband, moulded cornice and panelled flanking pilasters, has a panelled parapet breaking upwards with a shallow-gabled central panel; the symmetrical 3-window arrangement has 12-pane sashes at first floor, plus a central doorway with 4-panel door, ornamental overlight, and a stucco door case with pilasters, a dentil cornice and, in the frieze, a panel with egg-and-dart mouldings. The doorway is now flanked by C20 shop windows. Earlier 3-storey rubble rear range has sashes with rubble flat arches but is partly obscured at ground floor by later extensions. Interior: plaster modillion cornices; dog-leg staircase with winders, stick balustrade and wreathed mahogany handrail.  
 Listing NGR: SP5847222520  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 2/113, p.54 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063

<b>Site Number</b>	87
<b>Site Name</b>	NO 29 CAUSEWAY
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046477
<b>HER Number</b>	18938
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458354
<b>Northing</b>	222289
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. Late C17/early C18 SITE (Unknown date) Covering Building Material CONCRETE Covering Building Material

TILE  
 Covering Building  
 Material  
 WELSH SLATE  
 Main Building  
 Material  
 LIMESTONE  
 Main Building  
 Material  
 RENDER  
 Main Building  
 Material  
 RUBBLE  
 HOUSE (Late C17, Post Medieval - 1667 AD to 1699 AD)  
 SHOP (Late C17, Post Medieval - 1667 AD to 1699 AD)  
 HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 SP5822S BICESTER CAUSEWAY  
 3/12 (South side)  
 20/03/70 No.29  
 GV II  
 Coursed squared limestone rubble with wooden lintels; Welsh-slate and concrete plain-tile roof with brick gable stacks. Lplan; 2 storeys plus attic and 2 storeys. 2-window front has 12-pane sashes at first floor and enlarged C20 shop windows below; right gable wall, facing Church Lane, has an inserted doorway, renewed casements at first and second floors, plus 2 narrow stair windows. Lower rear wing, returning from gable wall, has a renewed 2-light casement, reduced from 3 lights, plus a sash window at first floor. Rendered rear of main range has a gable bearing a stack. Steep-pitched roofs. Interior not inspected. Listing NGR: SP5835422289  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/12, p.5 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	88
<b>Site Name</b>	NOS 1 TO 5 (CONSEC) CHURCH LANE
<b>Type of Site</b>	Terrace
<b>NMRS Number</b>	1046480
<b>HER Number</b>	18940
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458355
<b>Northing</b>	222274
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Terrace of 5 small houses. c.1840 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material ASHLAR

Main Building  
Material  
BRICK  
Main Building  
Material  
LIMESTONE  
Main Building  
Material  
RENDER  
TERRACE (c1840, Post Medieval - 1820 AD to 1860 AD)  
TERRACED HOUSE (c1840, Post Medieval - 1820 AD to 1860 AD)  
SP58225 BICESTER CHURCH LANE  
(East side)  
3/15 Nos.1 to 5 (consec)  
GV II  
Chequer brick with yellow headers on limestone-ashlar plinth; Welsh-slate roof with brick stacks. Double-depth plans. 3 storeys. Fronts each have a 12-pane unhorned sash, at ground and first floors, plus 9-pane sash at second floor; doors are arranged alternately to right and left. All openings have red-brick segmental arches. Rear is rendered with C20 windows. Interiors not inspected. Included for group value. Listing NGR: SP5835522274  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/15, p.7 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 89  
**Site Name** NO 6 (REYNARD COTTAGE), CHURCH STREET  
**Type of Site** House  
**NMRS Number** 1046481  
**HER Number** 18942  
**Status** Listed Building- Grade II  
**Easting** 458328  
**Northing** 222325  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Small house. Possibly C18  
SITE (Unknown date)  
Covering Building  
Material  
WELSH SLATE  
Main Building  
Material  
LIMESTONE  
Main Building  
Material  
RENDER  
Main Building  
Material  
RUBBLE  
HOUSE (C18, Post Medieval - 1700 AD to 1799 AD)  
SP58225 BICESTER CHURCH STREET  
3/17 (North side)

22/07/76 No.6 (Reynard Cottage)  
GV II  
Part-rendered limestone rubble; Welsh-slate roof with brick end stack. Single-unit plan with rear wing. 2 storeys. Rendered 2- window front breaks forward in the right bay with 2-light smallpane casements, larger at ground floor; left bay, which contains the doorway below a narrow window, may be later. Included for group value. Listing NGR: SP5832822325  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/17, p.7 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 90  
**Site Name** KIRBY MEMORIAL APPROXIMATELY 14 METRES  
**Type of Site** Tomb  
**NMRS Number** 1046486  
**HER Number** 18952  
**Status** Listed Building- Grade II  
**Easting** 458281  
**Northing** 222264  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Chest tomb. c.1818  
SITE (Unknown date)  
Main Building  
Material  
MARLSTONE  
CHEST TOMB (c1818, Post Medieval - 1798 AD to 1838 AD)  
SP58225 BICESTER CHURCH STREET  
(South side)  
3/30 Kirby memorial approx. 14m. S of tower of Church of St. Edburg  
GV II  
Marlstone. Rectangular chest, with moulded base and cover, has moulded angle strips, inscription panels, and carries a large gadrooned urn. Inscriptions commemorate members of the Kirby family and retain some black colouring with gilt lettering. Listing NGR: SP5828122264  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/30, p.13 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 91  
**Site Name** NO 7 (SIX BELLS INN), CHURCH STREET  
**Type of Site** Public House  
**NMRS Number** 1046487  
**HER Number** 18955  
**Status** Listed Building- Grade II

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<b>Easting</b>	458216
<b>Northing</b>	222328
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Public house. 1682 on datestone, altered C20 SITE (Unknown date) Covering Building Material CONCRETE Covering Building Material TILE Main Building Material LIMESTONE Main Building Material RUBBLE DATE STONE (1682, Post Medieval - 1682 AD) PUBLIC HOUSE (1682, Post Medieval - 1682 AD) PUBLIC HOUSE (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER CHURCH STREET 3/34 (South side) 20/03/70 No.7 (Six Bells Inn) GV II Colourwashed limestone rubble with wooden lintels; concrete plain-tile roof with brick end stacks. 2-unit plan extended to rear. 2 storeys plus attic. 2-window front has a central doorway enclosed by large linked bay windows, possibly originally C19 but renewed; first floor has short sashes, 4 panes wide, and a central datestone inscribed "MI/1682". Steep-pitched roof has a central 2-light small-pane roof dormer. Wrought-iron sign bracket. Interior not inspected. (V.C.H.: Oxfordshire, Vol.VI, p.17). Listing NGR: SP5821622328 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/34, p.16 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	92
<b>Site Name</b>	NO 6 KINGS END
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046488
<b>HER Number</b>	18959
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458211
<b>Northing</b>	222373
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Small house, now part of convent. C18, altered early C19/C20 NUNNERY (Now, Undated) SITE (Unknown date) Covering Building

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<b>Material</b>	CONCRETE
<b>Covering Building</b>	Material TILE
<b>Main Building</b>	Material BRICK
<b>Material</b>	Main Building Material LIMESTONE
<b>Main Building</b>	Material RUBBLE
	HOUSE (C18, Post Medieval - 1700 AD to 1799 AD) DATE STONE (1750, Post Medieval - 1750 AD) DATE STONE (1789, Post Medieval - 1789 AD) HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) HOUSE (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER KINGS END 3/38 (North side) 20/03/70 No.6 GV II Limestone rubble with some brick dressings; concrete plain-tile roof with rebuilt brick gable stacks. 2-unit plan with rear wing. 2 storeys raised to 2 storeys plus attic. 2-window front has a 4-panel door, to right of centre, and has two 2-light casements at each floor. Original openings have brick flat arches; attic windows are in half dormers. Datestone built into door jamb is inscribed "1750". Lower rear wing has a datestone inscribed "1798", Interior: C18 fireplace with moulded mantleshelf; contemporary cupboards and joinery. Included for group value. Listing NGR: SP5821122373 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/38, p.17 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	93
<b>Site Name</b>	NOS 22 & 24 KINGS END
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046490
<b>HER Number</b>	18964
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458016
<b>Northing</b>	222456
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Pair of houses. Mid/late C18, altered early C20 SITE (Unknown date) Covering Building Material CONCRETE Covering Building Material

TILE  
Main Building  
Material  
ASHLAR  
Main Building  
Material  
LIMESTONE  
Main Building  
Material  
RUBBLE  
HOUSE (Mid/late C18, Post Medieval - 1733 AD to 1799 AD)  
HOUSE (Early C20, Post Medieval to Modern - 1900 AD to 1932 AD)  
SP5822S BICESTER KINGS END  
(North side)  
3/44 Nos.22 and 24  
27/08/76  
GV II  
Coursed limestone rubble with some ashlar dressings; concrete plain-tile roofs with brick end stacks. Double-depth plans. 2 storeys, raised to 2 storeys plus attic. Symmetrical 2-window fronts each have a central panelled door with a flat canopy, and have 2 renewed two-light casements at each floor, the original openings with ashlar flat arches, the attic windows in half dormers. Interiors not inspected. Included for group value. Listing NGR: SP5801622456  
Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/44, p.21  
(Index). SOX260.

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**Site Number** 94  
**Site Name** LAMSDALE COTTAGE, LAUNTON ROAD  
**Type of Site** Cottage  
**NMRS Number** 1046493  
**HER Number** 18973  
**Status** Listed Building- Grade II  
**Easting** 458657  
**Northing** 222282  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Small house. C18 (or possibly earlier) and early C19  
SITE (Unknown date)  
Covering Building  
Material  
TILE  
Covering Building  
Material  
WELSH SLATE  
Main Building  
Material  
LIMESTONE  
Main Building  
Material  
RENDER  
Main Building  
Material  
RUBBLE

HOUSE (C18, Post Medieval - 1700 AD to 1799 AD)  
HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)  
SP5822S BICESTER LAUNTON ROAD  
(South side)  
3/53 Lamsdale Cottage  
GV II  
Part-rendered limestone rubble; Welsh-slate and old plain-tile roof with brick stacks. 2-unit plan in 2 builds. 2 storeys and one storey plus attics. Left half of rendered front is earlier, with a steep-pitched roof, and has a 12-pane sash. 2-storey bay to right, with a shallower roof, has a 16-pane sash, the entrance to extreme right, and has a low sash at first floor, 6 panes wide. Slated roof has stacks to left of each section. Rear of earlier section is rubble with a tiled roof and has 2 gabled dormers. Interior: earlier bay has a butt-purline roof with the tiebeams cut through. Included for group value. Listing NGR: SP5865722282  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/53, p.24  
(Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

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**Site Number** 95  
**Site Name** STATION HOUSE APPROXIMATELY 15 METRES  
**Type of Site** House  
**NMRS Number** 1046495  
**HER Number** 18980  
**Status** Listed Building- Grade II  
**Easting** 458722  
**Northing** 222042  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Former station-master's house. c.1850  
SITE (Unknown date)  
Covering Building  
Material  
TILE  
Main Building  
Material  
ASHLAR  
Main Building  
Material  
LIMESTONE

STATION MASTERS HOUSE (c1850, Post Medieval - 1830 AD to 1880 AD)  
SP5822S BICESTER LONDON ROAD  
(West side)  
3/61 Station House approx. 15m. NW  
of level crossing  
II  
Coursed squared limestone with ashlar dressings; plain-tile roofs with rubble and brick stacks. Z-shaped plan. One storey plus attics. Tudor style. Front breaks forward to right in a gabled cross wing, which contains a Tudor-arched doorway with a 4-panel door plus, at each floor, a 2-light small-pane casement with chamfered stone surround, wood mullion and 4-centred relieving arch. Lateral stack, rising from right return wall, has a rubble base and 2 tall brick diagonal shafts. Gabled return wall of blind section to left has aligned windows of 3 and 2 lights, and a further double-shafted lateral stack rises to rear. Central rear wing is in similar style. Gables



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have plain bargeboards with moulded apex pendants. Interior not inspected. Part of the London and North Western Railway which opened 1850. Listing NGR: SP587222042  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/61, p.28 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	96
<b>Site Name</b>	NO 3 CAUSEWAY
<b>Type of Site</b>	Shope and House
<b>NMRS Number</b>	1046513
<b>HER Number</b>	18930
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458438
<b>Northing</b>	222332
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. Late C17, remodelled and extended early C19 SITE (Unknown date) Covering Building Material TILE Main Building Material BRICK Main Building Material LIMESTONE Main Building Material RENDER Main Building Material RUBBLE HOUSE (Late C17, Post Medieval - 1667 AD to 1699 AD) SHOP (Late C17, Post Medieval - 1667 AD to 1699 AD) HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD) SP5822S BICESTER CAUSEWAY 3/4 (South side) 20/03/70 No.3 GV II Partly-rendered limestone rubble and brick; plain-tile roof with brick gable stack. 2-unit plan with added rear wing. 2 storeys plus attic. Rendered 2-window front, with plinth and storey band, retains one horizontal-sliding sash at first floor and, at ground floor, has a C19 shop front with inset doorway below a contemporary fascia plus, to right, a 16-pane sash. Roof has a semi-inset roof dormer and a stack to right. Rear has 2 small gabled projections plus the brick rear wing. Interior; wide late- C17 open-well stair rising to attic with turned balusters, moulded handrail, ball finials and turned pendants (the lowest flight altered); early-C18 fielded panelling at first floor with matching doors, architraves and integral cupboards, a moulded cornice, and a fireplace with a moulded mantel shelf and a panelled overmantel with flanking pilasters. Listing NGR: SP5843822332

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<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/4, p.2 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	97
<b>Site Name</b>	NO 7 CAUSEWAY
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046514
<b>HER Number</b>	18932
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458428
<b>Northing</b>	222323
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. Possibly C17, altered and extended C19 SITE (Unknown date) Covering Building Material TILE Main Building Material RENDER Main Building Material RUBBLE HOUSE (C17, Post Medieval - 1600 AD to 1699 AD) SHOP (C17, Post Medieval - 1600 AD to 1699 AD) HOUSE (C19, Post Medieval - 1800 AD to 1899 AD) SHOP (C19, Post Medieval - 1800 AD to 1899 AD) SP5822S BICESTER CAUSEWAY 3/6 (South side) 20/03/70 No.7 GV II Rendered rubble; plain-tile roof with brick end stack. 2-unit plan with added rear wing. 2 storeys. 2-window front has flush 12- pane sashes, a window of similar width at ground floor plus a small shop window and adjoining entrance. Long rear range of several builds. Interior not inspected. Listing NGR: SP5842822323 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/6, p.3 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	98
<b>Site Name</b>	NO 13 CAUSEWAY
<b>Type of Site</b>	House

## Site Gazetteer



<b>NMRS Number</b>	1046515
<b>HER Number</b>	18934
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458411
<b>Northing</b>	222316
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House. Late C18/early C19 SITE (Unknown date) Covering Building Material TILE Main Building Material BRICK Main Building Material LIMESTONE Main Building Material RUBBLE HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD) HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) SP5822S BICESTER CAUSEWAY 3/8 (South side) 20/03/70 No.13 GV II Part-colourwashed limestone rubble with wooden lintels; plain-tile roof with brick end stacks. 2-unit plan with rear wing. 2 storeys. Symmetrical 3-window front has a central doorway below a blind window and has 16-pane sashes in the outer bays; lintels have stop chamfers. Rubble and brick rear wing returns on right. Interior not inspected. Listing NGR: SP5841122316 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/8, p.4 (Index). SOX260. <3> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	99
<b>Site Name</b>	OXFORD HOUSE, KINGS END
<b>Type of Site</b>	House
<b>NMRS Number</b>	1200078
<b>HER Number</b>	18970
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458040
<b>Northing</b>	222450
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Substantial house. Probably early C18, altered and extended early C19 SITE (Unknown date) Covering Building

## Site Gazetteer



<b>Material</b>	TILE
<b>Covering Building</b>	Material WELSH SLATE
<b>Main Building</b>	Material RENDER
<b>HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)</b>	
<b>HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)</b>	
<b>SP5822S BICESTER KINGS END</b>	
<b>3/50 (South side)</b>	
<b>20/03/70 Oxford House</b>	
<b>(Formerly listed as Corner House (Y.W.C.A.))</b>	
<b>GV II</b>	
<b>Rendered walls; Welsh-slate and old plain-tile roofs. L-plan, extended. 2 storeys. Earlier block, at angle of ranges, has a symmetrical 3-window front, facing north, with plinth, storeyband and deep plaster eaves cove; the early-C19 pilastered stucco doorcase contains a glazed 2-leaf door, and the windows have 16-pane early-C19 sashes. 3-window range to left has similar plinth and storeyband but a lower-pitched roof; the 6-panel door has a plain stucco doorcase with projecting keyblock, and the windows have 16-pane sashes at ground floor and 12-pane sashes above. Roof of earlier section is hipped to right and returns over the 3-window west front (probably originally 4 windows) which has a 6-panel door in a pilastered doorcase and similar 16-pane sashes. A 2-window extension to the range (again without the eaves cove but with a steep roof) has 16-pane sashes and a plain doorway. Interior not inspected. Listing NGR: SP5804022450</b>	
<b>&lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/50, p.23 (Index). SOX260.</b>	
<b>&lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063</b>	

<b>Site Number</b>	100
<b>Site Name</b>	NO 2 LAUNTON ROAD
<b>Type of Site</b>	House
<b>NMRS Number</b>	1200097
<b>HER Number</b>	18972
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458651
<b>Northing</b>	222276
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop, now house. Late C18/early C19 HOUSE (Now, Undated) SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material RENDER SHOP (Late C18, Post Medieval - 1767 AD to 1799 AD) SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD)

## Site Gazeteer



SP5822S BICESTER LAUNTON ROAD  
(South side)  
3/52 No.2  
GV II  
Rendered walls; Welsh-slate roof with brick stack. Single-unit trapezoidal plan on a corner site, 2 storeys. 2-window front has a large 6-pane window with an arched head, and has the entrance to extreme right; first floor has two 12-pane sashes. Wall returning on the right at an oblique angle, facing London Road, has a large 9-pane window and, at first floor, has a roundheaded sash with Gothick glazing bars. Roof is hipped to right and has a lateral stack to rear. Interior not inspected. Listing NGR: SP5865122276  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/52, p.24 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063

<b>Site Number</b>	101
<b>Site Name</b>	6 LONDON ROAD
<b>Type of Site</b>	Public House
<b>NMRS Number</b>	1200144
<b>HER Number</b>	18979
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458611
<b>Northing</b>	222290
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Public house, now part of hotel. Probably C18 HOTEL (Now, Undated) SITE (Unknown date) Covering Building Material TILE Covering Building Material WELSH SLATE Main Building Material BRICK Main Building Material LIMESTONE Main Building Material RENDER Main Building Material RUBBLE PUBLIC HOUSE (C18, Post Medieval - 1700 AD to 1799 AD) SP5822S BICESTER LONDON ROAD 3/60 (West side) 20/03/70 No.6 GV II

## Site Gazeteer



Part-rendered limestone rubble with some brick dressings; plain-tile and Welsh-slate roofs with brick end stacks. L-plan. 2 storeys. Rendered 2-window front of main range, at right angles to road, has 12-pane sashes and a pedimented C20 doorcase which cuts the storeyband. 2-window rear wing, returning from the left at an oblique angle along the road, has 12-pane sashes at first floor and C20 casements below. Rear and end wall of wing are rubble with brick dressings. Interior not inspected. Listing NGR: SP5861122290  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/60, p.28 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	102
<b>Site Name</b>	NO 20 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1200208
<b>HER Number</b>	18992
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458490
<b>Northing</b>	222385
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. Early C18 SITE (Unknown date) Covering Building Material TILE Main Building Material BRICK Main Building Material LIMESTONE Main Building Material RUBBLE HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD) SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD) SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER MARKET SQUARE 3/73 (North side) 20/03/70 No.20 GV II Colourwashed limestone rubble and brick; plain-tile roof. Main range plus short rear wing. 2 storeys plus attics. Front is brick at first floor and has a large central C20 window and a deep moulded plaster eaves cove. To extreme left of C20 shop front is a narrow section of rubble walling with a shaped oak bracket fixed to a bressumer. Steep-pitched roof has 2 flat-headed roof dormers with moulded cornices. Rubble left end wall returns to a short contemporary rear wing. Interior not inspected. C20 rear extension is not of special architectural interest. Listing NGR: SP5849022385 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/73, p.34

(Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	103
<b>Site Name</b>	NO 24 MARKET SQUARE
<b>Type of Site</b>	Offices
<b>NMRS Number</b>	1200211
<b>HER Number</b>	18994
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458462
<b>Northing</b>	222374
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling, now offices. Mid C18 BANK (FINANCIAL) (Undated)                  OFFICE (Now, Undated)                  SITE (Unknown date)                  Covering Building                  Material                  WELSH SLATE                  Main Building                  Material                  BRICK                  Main Building                  Material                  LIMESTONE                  Main Building                  Material                  RUBBLE                  HOUSE (Mid C18, Post Medieval - 1733 AD to 1766 AD)                  SHOP (Mid C18, Post Medieval - 1733 AD to 1766 AD)                  SP5822S BICESTER MARKET SQUARE                  3/75 (North side)                  20/03/70 No.24                  (Formerly listed as National Provincial Bank)                  GV II                  Chequer brick with some red-brick dressings; limestone rubble; Welsh-slate roof with rebuilt brick gable stacks. Main range plus long rear wing. 3 storeys. Symmetrical 3-window front, flanked by projecting full-height brick strips rising above the eaves, has a first-floor storeyband and a brick dentil eaves course; upper windows have red-brick segmental arches and contain 4-pane sashes (shorter at second floor) except the middle windows which are blind, the top window containing a sundial. Shop front retains narrow panelled pilasters to the flanking doorways, which have carved consoles carrying a fascia with a modillion cornice. Rear of main range is rubble. Interior not inspected.                  Listing NGR: SP5846222374                  &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/75, p.35                  (Index). SOX260.                  &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	104
<b>Site Name</b>	NOS 7 & 8 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1200227
<b>HER Number</b>	18996
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458581
<b>Northing</b>	222403
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling. Late C18/early C19 SITE (Unknown date)                  Covering Building                  Material                  TILE                  Covering Building                  Material                  WELSH SLATE                  Main Building                  Material                  LIMESTONE                  Main Building                  Material                  RENDER                  Main Building                  Material                  ROUGHCAST                  Main Building                  Material                  RUBBLE                  HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD)                  SHOP (Late C18, Post Medieval - 1767 AD to 1799 AD)                  HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)                  SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD)                  SHOP (C19, Post Medieval - 1800 AD to 1899 AD)                  SP5822S BICESTER MARKET SQUARE                  3/77 (East side)                  20/03/70 Nos.7 and 8                  GV II                  Rendered and limestone-rubble walls; Welsh-slate roof with brick end stacks. Main range plus rear wing with adjoining carriage entry. 3 storeys. Rendered 4-window front is rusticated at ground floor and roughcast above, and has storeybands and flanking vertical strips. First-floor and second-floor windows have 12- and 9-pane sashes with stone sills on moulded brackets; right half of ground-floor has a tripartite sash and a 4-panel door with overlight; left half has a C19 shop front with 2 large canted bay windows linked by a fascia and moulded cornice. Right corner of front is rounded and returns to a rubble rear wing. A small rendered extension projects over the double-doored vehicular entry to right, and has a 12-pane sash and an old plain-tile roof. Interiors not inspected. Listing NGR: SP 58581 22403                  &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/77, p.36                  (Index). SOX260.                  &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

## Site Gazetteer



<b>Site Number</b>	105
<b>Site Name</b>	NO 40 (KINGS ARMS HOTEL), MARKET SQUARE
<b>Type of Site</b>	Hotel
<b>NMRS Number</b>	1200421
<b>HER Number</b>	19001
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458579
<b>Northing</b>	222333
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Hotel. C18, possibly partly earlier            SITE (Unknown date)            Covering Building            Material            TILE            Covering Building            Material            WELSH SLATE            Main Building            Material            RENDER            Main Building            Material            STUCCO            HOTEL (C18 and earlier, Post Medieval - 1650 AD to 1799 AD)            HOTEL (C20, Post Medieval to Modern - 1900 AD to 1999 AD)            SP5822S BICESTER MARKET SQUARE            3/82 (South side)            20/03/70 No.40 (Kings Arms Hotel)            GV II            Rendered walls with some stucco dressings; Welsh-slate and plain-tile roofs with brick stacks. L-plan. 3 storeys, and 2 storeys plus attics. 6-window front has the entrance in bay 3 with a 6-panel door, ornamental overlight, and a doorcase with fluted pilasters and entablature carrying the royal arms; secondary entrance in bay 5 is now a window; all other windows, including those of 3-bay range returning on left, have 12-pane sashes. Roofs are concealed by plain parapets. 2-window range, extending rear wing and incorporating the carriage entry, has a steep-pitched tiled roof with paired brick stacks, and is probably early C18; it has flat-headed roof dormers, and each side wall has a Venetian window with pilastered mullions and jambs. A further steep-roofed range, to right of the main range, extends to rear of No.39 (q.v.) and probably shares the C17 stack with it. Rear of main range has C20 extensions. Interior not inspected. (V.C.H.: Oxfordshire, Vol.VI, p.18; Buildings of England: Oxfordshire, p.456). Listing NGR: SP5857922333            &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/82, p.39 (Index). SOX260.            &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	106
<b>Site Name</b>	NO 36 (BARCLAYS BANK), MARKET SQUARE

## Site Gazetteer



<b>Type of Site</b>	Bank
<b>NMRS Number</b>	1200442
<b>HER Number</b>	19005
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458543
<b>Northing</b>	222344
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Bank. Early/mid C19 incorporating earlier elements, altered C20            SITE (Unknown date)            Covering Building            Material            TILE            Covering Building            Material            WELSH SLATE            Main Building            Material            ASHLAR            Main Building            Material            LIMESTONE            Main Building            Material            RENDER            Main Building            Material            RUBBLE            Main Building            Material            STUCCO            BANK (FINANCIAL) (Early/mid C19 and earlier, Post Medieval - 1750 AD to 1866 AD)            BANK (FINANCIAL) (C20, Post Medieval to Modern - 1900 AD to 1999 AD)            SP5822S BICESTER MARKET SQUARE            3/86 (South side)            20/03/70 No.36 (Barclays Bank)            GV II            Painted ashlar; rendered walls with stucco dressings; coursed limestone rubble: Welsh-slate and old plain-tile roofs. Main range of 2 builds, much extended to rear. 2 storeys and 3 storeys. 3 ashlar bays to right of front are taller, with storeybands, moulded cornice and 12- and 6-pane sashes to the first and second floors; rusticated ground floor has an arcade of 2 blind round-headed recesses flanking a wide segmental archway containing an elaborately-framed depressed-arched sash with flanking panels and a vertical-sliding external shutter. The carved keyblocks, together with the rustication, band and cornice, are repeated in stucco on the 2-storey 3-window range, to left, which is a later build and contains plain 16-pane sashes plus the main entrance. Shallow-pitched hipped slated roofs are concealed by plain parapets. To rear of the taller section, an earlier rubble building, with a steep-pitched tiled roof, rises out of later single-storey extensions; it is of 2 storeys plus attic and retains casement windows. Interior not inspected. (Buildings of England; Oxfordshire, p.455). Listing NGR: SP5854322344            &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/86, p.41 (Index). SOX260.            &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

## Site Gazetteer



<b>Site Number</b>	107
<b>Site Name</b>	NO 26 SHEEP STREET
<b>Type of Site</b>	House
<b>NMRS Number</b>	1200538
<b>HER Number</b>	19022
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458535
<b>Northing</b>	222505
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shown on Ordnance Survey map as Nos.26 and 28. 2 shops and dwelling. Probably early/mid C18, altered early C19</p> <p>SITE (Unknown date)</p> <p>Covering Building</p> <p>Material</p> <p>WELSH SLATE</p> <p>Main Building</p> <p>Material</p> <p>RENDER</p> <p>HOUSE (Early/mid C18, Post Medieval - 1700 AD to 1766 AD)</p> <p>SHOP (Early/mid C18, Post Medieval - 1700 AD to 1766 AD)</p> <p>HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)</p> <p>SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD)</p> <p>SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)</p> <p>SP5822N, SP5822S BICESTER SHEEP STREET</p> <p>2/105, 3/105 (East side)</p> <p>20/03/70 No.26</p> <p>GV II</p> <p>Rendered walls; Welsh-slate roof with brick end stacks. Main range plus rear wing. 2 storeys plus attics, raised to 3 storeys. 2-window front has 12-pane sashes at first floor and 9-pane sashes above; a high parapet conceals a steep-pitched roof. C20 shop fronts. Interior not inspected. Listing NGR: SP5853522505</p> <p>&lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 2/105, 3/105, p.50 (Index). SOX260.</p> <p>&lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	108
<b>Site Name</b>	NOS 1 & 3 LONDON ROAD
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1300936
<b>HER Number</b>	18974
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458608
<b>Northing</b>	222334
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council

## Site Gazetteer



<b>Description</b>	<p>Shop and dwelling. Probably mid C18 and C19</p> <p>SITE (Unknown date)</p> <p>Covering Building</p> <p>Material</p> <p>TILE</p> <p>Covering Building</p> <p>Material</p> <p>WELSH SLATE</p> <p>Main Building</p> <p>Material</p> <p>BRICK</p> <p>Main Building</p> <p>Material</p> <p>LIMESTONE</p> <p>Main Building</p> <p>Material</p> <p>PEBBLEDASH</p> <p>Main Building</p> <p>Material</p> <p>RENDER</p> <p>Main Building</p> <p>Material</p> <p>RUBBLE</p> <p>HOUSE (Mid C18, Post Medieval - 1733 AD to 1766 AD)</p> <p>SHOP (Mid C18, Post Medieval - 1733 AD to 1766 AD)</p> <p>HOUSE (C19, Post Medieval - 1800 AD to 1899 AD)</p> <p>SHOP (C19, Post Medieval - 1800 AD to 1899 AD)</p> <p>SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)</p> <p>SP5822S BICESTER LONDON ROAD</p> <p>3/54 (East side)</p> <p>20/03/70 Nos.1 and 3</p> <p>GV II</p> <p>Pebbledashed brick and limestone rubble; plain-tile and Welsh-slate roofs with brick stacks. Range of 2 builds with rear wing. 3 storeys and 2 storeys plus attic. 4-window front of No.1 has a second-floor storeyband, cornice and plain parapet, all rendered over, and has 4-light C19 sashes, shorter at second floor. Steep-pitched tiled roof has flanking stacks. Single-bay front of No.3, to right, also has a band and is rendered, but is probably C19; there is a canted bay window at first floor. Shallow-pitched roof is slated. Continuous C20 shop front. Rubble rear of No.1 has a contemporary lower rear wing, returning on left, which has some leaded casements, and there is a hipped-roofed stair projection in the angle of the ranges. Interior: dogleg stair, rising to attic, with turned column balusters, moulded handrails carried over rectangular newels, and closed strings, moulded to landings. Listing NGR: SP5860822334</p> <p>&lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/54, p.25 (Index). SOX260.</p> <p>&lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>
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<b>Site Number</b>	109
<b>Site Name</b>	NO 20 KINGS END
<b>Type of Site</b>	House
<b>NMRS Number</b>	1300945
<b>HER Number</b>	18963
<b>Status</b>	Listed Building- Grade II

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<b>Easting</b>	458020
<b>Northing</b>	222469
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>House. Late C18/early C19 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material RENDER HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD) HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) SP5822S BICESTER KINGS END 3/43 (North side) 22/07/76 No.20 GV II Rendered walls; Welsh-slate roof with rebuilt end stack. Double-depth plan with carriage entry. 2 storeys. 3-window front has a 2-panel door with overlight, to left of centre, a renewed canted bay window to left, and a wide depressed archway to right; first floor has 12-pane sashes. Interior not inspected. Listing NGR: SP5802022469 &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/43, p.20 (Index). SOX260. &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	110
<b>Site Name</b>	NO 5 (CRICK HOUSE), CHURCH STREET
<b>Type of Site</b>	House
<b>NMRS Number</b>	1283129
<b>HER Number</b>	18954
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458228
<b>Northing</b>	222328
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>House. Late C17/early C18, remodelled early C19 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material RENDER HOUSE (Late C17, Post Medieval - 1667 AD to 1699 AD) HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD) HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) SP5822S BICESTER CHURCH STREET 3/33 (South side)</p>

## Site Gazetteer



	<p>20/03/70 No.5 (Crick House) GV II Rendered walls; Welsh-slate roof with brick stacks. 2-unit plan with rear additions. 2 storeys. 2-window front has a 4-panel door, to left of centre, with a pilastered stucco doorcase; to left is a 16-pane sash with moulded stuccoed architrave, and to right is a canted bay window. First floor has stucco-architraved 12-pane sashes. Long colourwashed rear wing has a large sash window. Interior: open fireplace; dog-leg stair of c.1700 with moulded closed string, square handrail with moulded capping, and turned balusters. Listing NGR: SP5822822328 &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/33, p.15 (Index). SOX260. &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>
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<b>Site Number</b>	111
<b>Site Name</b>	NOS 9 AND 11 CHURCH STREET
<b>Type of Site</b>	House
<b>NMRS Number</b>	1283135
<b>HER Number</b>	18956
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458219
<b>Northing</b>	222337
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>House, now 2 dwellings, 1676 on datestone, altered C19 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material LIMESTONE Main Building Material RUBBLE DATE STONE (1676, Post Medieval - 1676 AD) HOUSE (1676, Post Medieval - 1676 AD) HOUSE (C19, Post Medieval - 1800 AD to 1899 AD) SP5822S BICESTER CHURCH STREET 3/35 (South side) 20/03/70 Nos.9 and 11 GV II Coursed limestone rubble with wooden lintels; Welsh-slate roof with brick end stacks. 3-unit plan, subdivided. 2 storeys. 3- window front has, to left, an early-C19 canted bay window, to right, a 16-pane sash in a larger opening, and in the centre has a large 4-pane window flanked by half-glazed doors; first floor has 12-pane sashes plus a datestone inscribed "N/TI/1676". Interior not inspected. (V.C.H.; Oxfordshire, VOL.VI, p.17). Listing NGR: SP5821922337 &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/35, p.16 (Index). SOX260. &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

## Site Gazetteer



<b>Site Number</b>	112
<b>Site Name</b>	CHEST TOMB APPROXIMATELY 10 METRES NORTH OF CHANCEL OF CHURCH OF ST
<b>Type of Site</b>	Tomb
<b>NMRS Number</b>	1283147
<b>HER Number</b>	18950
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458322
<b>Northing</b>	222293
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Chest tomb. Late C17 SITE (Unknown date) Main Building Material MARBLE Main Building Material MARLSTONE CHEST TOMB (Late C17, Post Medieval - 1667 AD to 1699 AD) SP5822S BICESTER CHURCH STREET (South side) 3/28 Chest tomb approx. 10m. N of chancel of Church of St. Edburg GV II Marlstone and probably marble. Rectangular chest has shallow-panelled ends, but the sides each have 3 moulded panels. Cover, which may be marble, has a moulded edge and a largely-illegible inscription on the top. Listing NGR: SP583222293 &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/28, p.12 (Index). SOX260. &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	113
<b>Site Name</b>	NO 27 CAUSEWAY
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1283250
<b>HER Number</b>	18937
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458364
<b>Northing</b>	222298
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling. Possibly early C18; re-fronted mid/late C19 SITE (Unknown date) Covering Building Material LIMESTONE</p>

## Site Gazetteer



<b>Material</b>	WELSH SLATE
<b>Main Building</b>	Material
<b>Material</b>	ASHLAR
<b>Main Building</b>	Material
<b>Material</b>	BRICK
<b>Main Building</b>	Material
<b>Material</b>	LIMESTONE
<b>Main Building</b>	Material
<b>Material</b>	RUBBLE
<b>HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)</b>	
<b>SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD)</b>	
<b>HOUSE (Mid/late C19, Post Medieval - 1833 AD to 1899 AD)</b>	
<b>SHOP (Mid/late C19, Post Medieval - 1833 AD to 1899 AD)</b>	
<b>SP5822S BICESTER CAUSEWAY</b>	
<b>3/11 (South side)</b>	
<b>22/07/76 No.27</b>	
<b>GV II</b>	
<b>Coursed squared limestone rubble with ashlar dressings and some brick dressings; Welsh-slate roof with rendered stacks. Double-depth plan. 3 storeys. 2-window front, with parapet, large moulded cornice and second-floor storey band, has ashlar dressings and flat arches with projecting keyblocks; upper windows have 4-pane sashes. C20 shop front returns on left to recessed 4-panel entrance. Rear has renewed cross windows, with wooden lintels and brick jambs, and has a hipped roof. Interior not inspected. Included for group value. Listing NGR: SP5836422298</b>	
<b>&lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/11, p.5 (Index). SOX260.</b>	
<b>&lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063</b>	

<b>Site Number</b>	114
<b>Site Name</b>	NO 10 CAUSEWAY
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1369736
<b>HER Number</b>	18928
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458386
<b>Northing</b>	222327
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling. Early C18 SITE (Unknown date) Covering Building Material TILE Main Building Material LIMESTONE</p>



Main Building  
 Material  
 RENDER  
 Main Building  
 Material  
 RUBBLE  
 HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 SP5822S BICESTER CAUSEWAY  
 3/2 (North side)  
 20/03/70 No.10  
 (Formerly listed as Nos.10 and 12)  
 GV II  
 Limestone rubble, partly rendered; old plain-tile roof with brick ridge stack. 3-unit plan with adjoining cart entrance and rear wing. 2 storeys. Rendered 3-window front has renewed cross windows at first floor, and has similar but shorter windows below, except bay 5 which has an inserted shop front; adjoining cart-entry bay, to right, has large double doors, and the roof of the main range continues over its loft. Rubble rear wing has casements and a loft door. Interior not inspected. Listing NGR: SP5838622327  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/2, p.1 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 115  
**Site Name** NOS 9 AND 11 CAUSEWAY  
**Type of Site** House and Shop  
**NMRS Number** 1369738  
**HER Number** 18933  
**Status** Listed Building- Grade II  
**Easting** 458422  
**Northing** 222323  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Shop and dwelling. Possibly C17/C18, altered C19  
 SITE (Unknown date)  
 Covering Building  
 Material  
 TILE  
 Main Building  
 Material  
 RENDER  
 HOUSE (C17, Post Medieval - 1600 AD to 1699 AD)  
 SHOP (C17, Post Medieval - 1600 AD to 1699 AD)  
 HOUSE (C18, Post Medieval - 1700 AD to 1799 AD)  
 SHOP (C18, Post Medieval - 1700 AD to 1799 AD)  
 HOUSE (C19, Post Medieval - 1800 AD to 1899 AD)  
 SHOP (C19, Post Medieval - 1800 AD to 1899 AD)  
 SHOP (Early C20, Post Medieval to Modern - 1900 AD to 1932 AD)  
 SP5822S BICESTER CAUSEWAY  
 3/7 (South side)  
 22/07/76 Nos.9 and 11

GV II  
 Rendered walls; plain-tile roof with brick stacks. 3-unit plan. 2 storeys. 3-window front has canted bay windows: the right bay full height; the other bays above a projecting shop front. 6-panel door to extreme right. Early-C20 shop front includes a marble panel inscribed "BUCKLE". Steep-pitched roof has stacks at left end and to right of centre, Interior not inspected. Included for group value. Listing NGR: SP5842222323  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/7, p.3 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 116  
**Site Name** Langford Park Farmhouse, A41  
**Type of Site** Farmhouse  
**NMRS Number** 1369739  
**HER Number** 18093  
**Status** Listed Building- Grade II  
**Easting** 458380  
**Northing** 221258  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Farmhouse. C18 and early C19. Evaluation revealed Early Roman and Late Saxon features, including some opus signinum indicative of a Roman building.  
 BUILDING (Unknown date)  
 Covering Building  
 Material  
 CONCRETE  
 Covering Building  
 Material  
 TILE  
 Main Building  
 Material  
 LIMESTONE  
 Main Building  
 Material  
 RENDER  
 Main Building  
 Material  
 RUBBLE  
 POST HOLE (Unknown date)  
 Evidence SUB SURFACE DEPOSIT  
 DITCH (Roman - 43 AD to 409 AD)  
 Evidence SUB SURFACE DEPOSIT  
 PIT (Roman - 43 AD to 409 AD)  
 Evidence SUB SURFACE DEPOSIT  
 GULLY (Early Medieval/Dark Age - 410 AD to 1065 AD)  
 Evidence SUB SURFACE DEPOSIT  
 FARMHOUSE (C18, Post Medieval - 1700 AD to 1799 AD)  
 FARMHOUSE (EARLY C19, Post Medieval - 1800 AD to 1832 AD)  
 SP52SE AMBROSDEN A41  
 (South side)  
 6/4 Langford Park Farmhouse

II  
Limestone rubble with wooden lintels; some rendered walls; old plain-tile and concrete plain-tile roofs with brick stacks. 2 parallel ranges. 2 storeys and one storey plus attics. 4-window front of rendered C19 range, with rendered storey band, has the doorway in bay 3, with panelled door, rectangular overlight and a rendered pilastered surround, and in the extreme right bay has a large tripartite sash above a canted bay window; other windows have 12-pane sashes. Roof has stacks to left of centre and to right of gable. Lower C18 rubble range, with a steeper roof, extends beyond main range to right and has casements, except the central gabled section which has a 16-pane sash, and a raised section to rear of the left part of the front range which has a pair of large 12-pane sashes at first floor. Interior: some chamfered beams in earlier range; large stair hall containing early-C19 stair with turned balusters. Listing NGR: SP5838021258  
3-4) Evaluation revealed two distinct periods of activity in 5 of 7 trenches, most of the dated deposits being of early Roman date, but Late Iron Age material also found. Presence of opus signinum suggests durable building within vicinity of site, unusual for a rural settlement. Also identified were features containing late Saxon material suggesting that an occupation site of this period may be present nearby. A single prehistoric flint flake was recovered.  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 64: 6/4, p.2 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.  
<3> Thames Valley Archaeological Services, 2010, Langford Park Farm, London Road: Archaeological Evaluation (Unpublished document). SOX2613.  
<4> CBA South Midlands Group, South Midlands Archaeology, SMA 41 (2011) 58 (Serial). SOX5

<b>Site Number</b>	117
<b>Site Name</b>	NO 37 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1369752
<b>HER Number</b>	19004
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458552
<b>Northing</b>	222337
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling, now shop and offices. C18, possibly partly earlier, altered C20 OFFICE (Now, Undated) SHOP (Now, Undated) SITE (Unknown date) Covering Building Material TILE Covering Building Material WELSH SLATE Main Building Material LIMESTONE Main Building Material

RENDER  
Main Building  
Material  
RUBBLE  
Main Building  
Material  
STUCCO  
HOUSE (C18, Post Medieval - 1700 AD to 1799 AD)  
SHOP (C18, Post Medieval - 1700 AD to 1799 AD)  
OFFICE (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SP58225 BICESTER MARKET SQUARE  
3/85 (South side)  
20/03/70 No.37  
GV II  
Rendered walls with some stucco dressings; coursed limestone rubble with wooden lintels; Welsh-slate and old plain-tile roofs with rendered end stacks. Double-depth plan with rear wing and linked rear range. 3 storeys and 2 storeys plus attics. Symmetrical 3-window rendered front, with first-floor storeyband and mutilated cornice, has 12-pane sashes except for a central blind window on the top floor; ground floor rebuilt C20. 2-span shallow-pitched hipped roof is concealed by a plain parapet. Rubble rear wing, returning from right, has a steep-pitched tiled roof but is largely concealed by a C20 infill section. A single-storey range links to a rubble range of 2 storeys, plus attics which may be C17 and has a steep-pitched tiled roof. Interior: both floors of rear range have chamfered spine beams. (V.C.H.: Oxfordshire, Vol.VI, p.18). Listing NGR: SP5855222337  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/85, p.40 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063

<b>Site Number</b>	118
<b>Site Name</b>	OLD PLACE YARD HOUSE, OLD PLACE YARD
<b>Type of Site</b>	House
<b>NMRS Number</b>	1369754
<b>HER Number</b>	19013
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458353
<b>Northing</b>	222245
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House. Probably mid/late C16 incorporating medieval elements, and early C20 SITE (Unknown date) Covering Building Material OOLITIC LIMESTONE Covering Building Material SLATE Covering Building Material TILE Main Building

Material  
LIMESTONE  
Main Building  
Material  
RENDER  
Main Building  
Material  
RUBBLE  
AUGUSTINIAN MONASTERY (Medieval, Medieval to Post Medieval - 1066 AD to 1540 AD)  
GATEHOUSE (Medieval, Medieval to Post Medieval - 1066 AD to 1540 AD)  
HOUSE (Medieval, Medieval to Post Medieval - 1066 AD to 1540 AD)  
PRIORY (Medieval, Medieval to Post Medieval - 1066 AD to 1540 AD)  
HOUSE (Mid/late C16, Medieval to Post Medieval - 1533 AD to 1599 AD)  
HOUSE (Early C20, Post Medieval to Modern - 1900 AD to 1932 AD)  
P5822S BICESTER OLD PLACE YARD  
3/94 Old Place Yard House  
31/01/52 (Formerly listed as "Old Palace Yards and  
dovecote in the grounds, Palace Yard)  
GV II  
Part-rendered limestone rubble with wooden lintels; Stonesfield-slate and plain-tile roofs with brick stacks. 3-unit plan with rear outshut, added bay and linked rear range. 2 storeys plus attics. Rendered 3-window front of main range has canted bay windows incorporating doors, in bays 2 and 3, and has renewed 2-light casements elsewhere. Steep-pitched roof has a gable stack to left and a clustered stack to right of centre. Added 3-window section to right is set back with a lower roof. Left gable wall is medieval with a later gable, and was probably part of the gatehouse to Bicester Priory; it returns to the outshut. Rear wall of main range includes a single-light stair window and a small 2-light leaded window, both with heavy chamfered frames and massive lintels. Rubble single-storey rear range, parallel with and linked to the main range, has a steep-pitched tiled roof and casement windows. Interior: massive internal stack has a splayed ashlar fireplace with a chamfered segmental head, and another large fireplace behind it, now altered but retaining a large chamfered bressumer. Heavy chamfered intersecting beams; remains of timber-framed partitions; butt-purlin roof with large raking struts to the trusses. The medieval wall is approximately 1.4 metres thick at the base.  
(D.J. Watts, A Short History of Bicester Priory, p.14). Listing NGR: SP5835322245  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/94, p.44 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	119
<b>Site Name</b>	GARDEN WALLS OF THE OLD PRIORY AND BASSETT LODGE (NOT INCLUDED), PRIORY LANE
<b>Type of Site</b>	Wall
<b>NMRS Number</b>	1369755
<b>HER Number</b>	19015
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458393
<b>Northing</b>	222155
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Garden walls, part of a walled garden. Possibly partly C15/early C16 AUGUSTINIAN MONASTERY (Undated)

GUEST HOUSE (Undated)  
PRIORY (Undated)  
SITE (Unknown date)  
Covering Building  
Material  
TILE  
Main Building  
Material  
ASHLAR  
Main Building  
Material  
LIMESTONE  
Main Building  
Material  
RUBBLE  
GARDEN WALL (C15, Medieval - 1400 AD to 1499 AD)  
GARDEN WALL (Early C16, Medieval - 1500 AD to 1532 AD)  
SP5822S BICESTER PRIORY LANE  
(West side)  
3/98 Garden walls of The Old Priory  
20/03/70 and Bassett Lodge  
(not included)  
(Formerly listed as Walls of  
rectangular grounds at The Old Priory)  
GV II  
Limestone rubble, partly coursed, with some ashlar dressings and a plain-tile coping. Wall is now approximately 2.5 metres high but may have been higher, and it extends around the south, west, north and part of the east sides of a rectangular enclosure approximately 80 metres by 45 metres, formerly the walled garden of The Old Priory and now incorporating the gardens of Bassett Lodge and The Mill. The south wall includes a blacked doorway. The wall is continuous with the front wall The Mill (not included) and the rear wall of the stables (q.v.), and the enclosure is completed by The Old Priory with its flanking walls (q.v.) which may have been the hospice of Bicester Priory.  
Listing NGR: SP5839322155  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/98, p.47 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	120
<b>Site Name</b>	NO 28 (EMLYN HOUSE), SHEEP STREET
<b>Type of Site</b>	Shops and Office
<b>NMRS Number</b>	1369756
<b>HER Number</b>	19021
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458528
<b>Northing</b>	222516
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shown on Ordnance Survey map as No.30. House, now 3 shops and offices. Early/mid C18 and late C18, altered and extended C20 SITE (Unknown date)

Covering Building  
Material  
WELSH SLATE  
Main Building  
Material  
LIMESTONE  
Main Building  
Material  
RENDER  
Main Building  
Material  
RUBBLE  
Main Building  
Material  
STUCCO  
HOUSE (Early/mid C18, Post Medieval - 1700 AD to 1766 AD)  
HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD)  
OFFICE (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SP5822N BICESTER SHEEP STREET  
2/104 (East side)  
22/07/76 No.28 (Emlyn House)  
GV II  
Part-rendered limestone rubble with some stucco dressings; Welsh-slate roofs with brick end stacks. 2 parallel ranges, extended to rear. 2 storeys. Rendered 3-window front has flanking pilasters with moulded capitals, and has 12-pane sashes above C20 shop fronts. Steep-pitched roof. Rear range is shorter with a shallower late-C18 roof, but also has a 3-window arrangement of sashes, now obscured at ground floor. Interior not inspected. Listing NGR: SP5852822516  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 2/104, p.50 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063

**Site Number** 121  
**Site Name** NO 20 SHEEP STREET  
**Type of Site** Shop and House  
**NMRS Number** 1369757  
**HER Number** 19023  
**Status** Listed Building- Grade II  
**Easting** 458549  
**Northing** 222483  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Shop and dwelling. C18, possibly partly earlier, extended C20  
SITE (Unknown date)  
Covering Building  
Material  
WELSH SLATE  
Main Building  
Material  
RENDER

Main Building  
Material  
TIMBER  
SHOP (C18, Post Medieval - 1700 AD to 1799 AD)  
TIMBER FRAMED HOUSE (C18, Post Medieval - 1700 AD to 1799 AD)  
SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SP5822S BICESTER SHEEP STREET  
3/107 (East side)  
20/03/70 No.20  
GV II  
Rendered walls, possibly timber framed; Welsh-slate roofs with rendered gable stack. Main range plus rear wings. 3 storeys. 2-window front has 12- and 9-pane wood-architraved sashes at first and second floors, and has a small moulded eaves cove; ground floor has a C20 shop front with bay windows, and a secondary entrance to extreme right. Rear obscured by extensions. Interior not inspected. The ridge aligns with that of the steep-pitched roof of No.22 (not included), and the buildings may originally have been one house.  
Listing NGR: SP5854922483  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/107, p.51 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 122  
**Site Name** KING MEMORIAL APPROXIMATELY 12 METRES NORTH OF PORCH OF CHURCH OF ST EDBURG, C  
**Type of Site** Tomb  
**NMRS Number** 1369761  
**HER Number** 18949  
**Status** Listed Building- Grade II  
**Easting** 458300  
**Northing** 222303  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Chest tomb. c.1778  
SITE (Unknown date)  
Main Building  
Material  
MARLSTONE  
CHEST TOMB (c1778, Post Medieval - 1758 AD to 1798 AD)  
SP5822S BICESTER CHURCH STREET  
(South side)  
3/27 King memorial approx. 12m. N of porch of Church of St. Edburg  
GV II  
Marlstone. Rectangular chest, with moulded base and cover, has square corner balusters and panelled sides, the ends with urns in relief. The inscription commemorates Edward King (died 1778) and his wife Elizabeth. Listing NGR: SP5830022303  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/27, p.12 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

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<b>Site Number</b>	123
<b>Site Name</b>	NO 1 (BLUECOATS) AND 3 (TYSUL HOUSE), CHURCH STREET
<b>Type of Site</b>	House
<b>NMRS Number</b>	1369762
<b>HER Number</b>	18953
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458238
<b>Northing</b>	222320
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House, now 2 dwellings. Probably late C17, remodelled late C18 DOVECOTE (Undated) HOUSE (Now, Undated) SITE (Unknown date) Covering Building Material CONCRETE Covering Building Material TILE Covering Building Material WELSH SLATE Main Building Material LIMESTONE Main Building Material RENDER Main Building Material RUBBLE HOUSE (Late C17, Post Medieval - 1667 AD to 1699 AD) HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD) SP5822S BICESTER CHURCH STREET (South side) 3/32 Nos.1 (Bluecoats) and 3 20/03/70 (Tysul House) (Formerly listed as Nos.1 and 3 (Tysul House)) GV II Part-rendered limestone rubble with some wooden lintels; Welsh-slate and concrete plain-tile roofs with rendered stack. 3- unit lobby-entry plan with rear wing. 2 storeys plus attic, and 2 storeys. Rendered 3-window front of main range has a regular arrangement of architraved 12-pane sashes and has 4- and 6-panel doors between the bays; slated roof has one central roof dormer. Rubble left gable wall (to No.1) has a chimney projection with weathered offsets, and has small stair and attic windows; it returns to a lower rear wing which has casements and a single-row dove-cote. Rear of main range has a gabled stair projection. Interior: No.1 has a quarter-turn attic stair and a section of re-used mid-C17 panelling at first floor; No.3 has a broad dogleg stair of c.1700, rising to the attics with moulded closed string and handrail, ball finials and heavy turned balusters, and also has an early-C18 bolection-mould door. (V.C.H.: Oxfordshire, Vol.VI, p.17). Listing NGR: SP5823822320 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/32, p.15 (Index). SOX260.

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<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	124
<b>Site Name</b>	NO 13 (SWAN INN), CHURCH STREET
<b>Type of Site</b>	Public House
<b>NMRS Number</b>	1369763
<b>HER Number</b>	18957
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458208
<b>Northing</b>	222338
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Public house. 1681 on datestone, altered and extended C20 SITE (Unknown date) Covering Building Material CONCRETE Covering Building Material TILE Main Building Material LIMESTONE Main Building Material RUBBLE DATE STONE (1681, Post Medieval - 1681 AD) PUBLIC HOUSE (1681, Post Medieval - 1681 AD) PUBLIC HOUSE (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER CHURCH STREET 3/36 (South side) 31/01/52 No. 13 (Swan Inn) GV II Coursed limestone rubble with wooden lintels; concrete plain-tile roof with rebuilt brick stacks. 2-unit plan, extended to rear. 2 storeys plus attics. 2-window front has a doorway, to left of centre, between C20 canted bay windows, but retains 12-pane sashes with chamfered lintels at first floor, plus a datestone inscribed "M/EE/1681". Roof has been slightly raised and has a C20 dormer. Large early-C20 wing to rear is not of special architectural interest. Interior not inspected. Included for group value. Listing NGR: SP5820822338 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/36, p.16 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	125
<b>Site Name</b>	THE FOX INN, KINGS END
<b>Type of Site</b>	Public House

## Site Gazetteer



<b>NMRS Number</b>	1369764
<b>HER Number</b>	18962
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458025
<b>Northing</b>	222478
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Public house. Probably early C18 (possibly partly earlier) altered late C18 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material LIMESTONE Main Building Material RUBBLE PUBLIC HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD) PUBLIC HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD) SP5822S BICESTER KINGS END 3/42 (North side) 20/03/70 The Fox Inn GV II Colourwashed limestone rubble with wooden lintels; Welsh-slate roof with brick end stacks. Probable central-stair plan. 2 storeys, raised to 3. 3-window front has a central doorway, canted bay windows in the outer bays, and has a narrow window to left of the door; first floor has 9-pane sashes, and there are leaded 2-light casements at second floor. Wall has 2 bolectionmoulded C18 panels between the first-floor windows, plus a wider panel between first and second floors. Interior not inspected. Listing NGR: SP5802522478 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/42, p.20 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	126
<b>Site Name</b>	NOS 41, 45 & 47 KINGS END
<b>Type of Site</b>	Cottages
<b>NMRS Number</b>	1369766
<b>HER Number</b>	18971
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458015
<b>Northing</b>	222407
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Row of 4 cottages, now 2 houses. Early C18 ROW (Now, Undated) SITE (Unknown date)

## Site Gazetteer



<b>Covering Building Material</b>	CONCRETE
<b>Covering Building Material</b>	TILE
<b>Main Building Material</b>	LIMESTONE
<b>Main Building Material</b>	RUBBLE
<b>ROW (Early C18, Post Medieval - 1700 AD to 1732 AD)</b>	ROW HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD) SP5822S BICESTER KINGS END 3/51 (South side) 22/07/76 Nos.41, 45 and 47 (Formerly listed as Nos.41 -47 odd) II Limestone rubble with wooden lintels; concrete interlocking-tile roof with brick stacks. Single-unit plans combined. 2 storeys. Cottages had a single window at each floor, irregularly arranged, and the doors were grouped in pairs; all casements now renewed and the door to No.43 built-up. Interiors not inspected. (V.C.H.: Oxfordshire, Vol.VI, p.20). Listing NGR: SP5801522407 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/51, p.24 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	127
<b>Site Name</b>	NO 5 (BICESTER HALL), LONDON ROAD
<b>Type of Site</b>	Houses
<b>NMRS Number</b>	1369767
<b>HER Number</b>	18975
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458612
<b>Northing</b>	222323
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House, now offices. Late C18/early C19 OFFICE (Now, Undated) SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material BRICK HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD) HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) SP5822S BICESTER LONDON ROAD

3/55 (East side)  
 20/03/70 No.5 (Bicester Hall)  
 (Formerly listed as No.5)  
 GV II  
 Red brick in Flemish bond with flared headers; Welsh-slate roof with brick stacks. Double-depth plan in 2 builds. 3 storeys. 3 bays to left of 5-window front are earlier and has the doorway to right, with a 4-panel door, fanlight, and a renewed wooden pilastered doorcase with a pedimented head. Windows to both sections have segmental arches and sashes: 4-pane at ground floor, and with margin lights above. Stacks flank each section. Rear has further sashes, and the later section has a Venetian window. Interior: panelled doors; quarter-turn stair with stick balusters. Listing NGR: SP5861222323  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/55, p.25 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	128
<b>Site Name</b>	NO 4 LONDON ROAD
<b>Type of Site</b>	House
<b>NMRS Number</b>	1369768
<b>HER Number</b>	18978
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458597
<b>Northing</b>	222291
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House, now part of hotel. C17, altered C18 HOTEL (Now, Undated) SITE (Unknown date) Covering Building Material TILE Main Building Material BRICK Main Building Material LIMESTONE Main Building Material RENDER Main Building Material RUBBLE HOUSE (C17, Post Medieval - 1600 AD to 1699 AD) HOUSE (C18, Post Medieval - 1700 AD to 1799 AD) SP5822S BICESTER LONDON ROAD 3/59 (West side) 20/03/70 No.4 GV II Part-rendered limestone rubble with some brick dressings; old plain-tile roof with rubble-and-

brick ridge stack. 3-unit plan. 2 storeys plus attics, partly raised to 3 storeys. Rendered 2-window front has 12-pane sashes to the upper floors, but has 2 wider windows plus a doorway at ground floor. Right gable wall has similar windows. Front of the lower third bay, to left, is concealed by No.6 (q.v.) but its rubble left gable wall has 3-light casements to 3 floors. Small one-storey rubble wing attached to gable wall is probably C18. C17 rubble-based stack, to left of the higher roof, relates to the original roof and has 3 diagonal stacks. Rear has brick dressings to the raised section. Interior: winder stair rising to attics behind main stack. Listing NGR: SP5859722291  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/59, p.27 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	129
<b>Site Name</b>	NOS 15 & 16 MARKET SQUARE
<b>Type of Site</b>	Shops and House
<b>NMRS Number</b>	1369788
<b>HER Number</b>	18988
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458509
<b>Northing</b>	222402
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shops and dwelling, now shops and offices. Early C18, or possibly partly earlier, altered early C19 OFFICE (Now, Undated) SHOP (Now, Undated) SITE (Unknown date) Covering Building Material TILE Main Building Material LIMESTONE Main Building Material RENDER Main Building Material RUBBLE Main Building Material STUCCO HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD) SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD) HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD) SP5822S BICESTER MARKET SQUARE 3/69 (North side) 20/03/70 Nos.15 and 16 GV II Rendered and limestone-rubble walls; old plain-tile roof with brick stacks. L-plan. 2 storeys plus

attic. Rendered 3-window front has a first-floor storeyband, and a plain parapet rising from a deep band, probably originally moulded; central adjoining entrance doors are flanked by stucco pilasters and share an entablature; outer bays have 2-storey bay windows - to left rectangular, and to right canted and probably earlier; middle window at first floor is a tripartite sash, set to right-of centre. Steep-pitched roof has 3 hipped roof dormers. Further bay, from which rubble rear wing returns, is set behind Nos.13 and 14 (q.v.) and there is a 3-storey link in the angle between the properties. Interior not inspected. Listing NGR: SP5850922402  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/69, p.33 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	130
<b>Site Name</b>	NO 19 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1369789
<b>HER Number</b>	18991
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458490
<b>Northing</b>	222398
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. Late C18, partly earlier SITE (Unknown date) Covering Building Material SLATE Main Building Material RENDER Main Building Material TIMBER SHOP (Late C18 and earlier, Post Medieval - 1717 AD to 1799 AD) TIMBER FRAMED HOUSE (Late C18 and earlier, Post Medieval - 1717 AD to 1799 AD) SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER MARKET SQUARE (North side) 3/72 No. 19 20/03/70 II Rendered walls, possibly partly timber framed: Welsh-slate roof with brick stack. Double-depth plan with rear wing. 3 storeys. Narrow front has an architraved tripartite sash at first floor with an enriched entablature, and has a 16-pane sash at second floor; C20 shop front, partly built out. Shallow-pitched roof. Interior not inspected. Listing NGR: SP5849022398 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/72, p.34 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063

<b>Site Number</b>	131
<b>Site Name</b>	NO 1 (CLAREMONT HOUSE), MARKET SQUARE
<b>Type of Site</b>	House
<b>NMRS Number</b>	1369791
<b>HER Number</b>	19000
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458607
<b>Northing</b>	222353
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House, now shop and dwelling. Early C19 HOUSE (Now, Undated) SHOP (Now, Undated) SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material RENDER HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER MARKET SQUARE 3/81 (East side) 20/03/70 No.1 (Claremont House) GV II Rendered walls; Welsh-slate roof with rendered end stacks. Main range plus rear wing. 3 storeys plus attic. 3-window front has first-floor storeyband, cornice and plain parapet, which break around flanking projections; 4-pane sashes are taller at first floor than at second floor, but all have scalloped blind cases. Ground floor has a C20 shop front, an altered entry to an alleyway and, to extreme right, an arched doorway with a 6-panel door. Mansard roof has 3 dormers. Rear has further sashes to 4 floors. Interior: alleyway has a groined plaster vault; apsidal stair hall has a sweeping cantilevered stair, rising to the third floor, with a wreathed mahogany handrail and stick balusters. (V.C.H.: Oxfordshire, Vol.VI, p.18). Listing NGR: SP5860722353 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/81, p.38 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	132
<b>Site Name</b>	NO 2 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1046465
<b>HER Number</b>	18999
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458602
<b>Northing</b>	222365



## Site Gazetteer



<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling. Early/mid C19            SITE (Unknown date)            Covering Building            Material            WELSH SLATE            Main Building            Material            BRICK            Main Building            Material            RENDER            Main Building            Material            STUCCO            HOUSE (Early/mid C19, Post Medieval - 1800 AD to 1866 AD)            SHOP (Early/mid C19, Post Medieval - 1800 AD to 1866 AD)            SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)            SP58225 BICESTER MARKET SQUARE            3/80 (East side)            30/03/70 No.2            GV II            Part-rendered brick with some stucco dressings; Welsh-slate roof with brick end stacks. Double-depth plan. 3 storeys. Rendered 3-window front has 4-pane stucco-architraved sashes to the upper floors, at first floor with cornices on consoles. C20 shop front with vehicular entrance to extreme right. 2-span roof. Rear is in brick with further sashes. Interior not inspected. Included for group value. Listing NGR: SP5860222365            &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/80, p.38 (Index). SOX260.            &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	133
<b>Site Name</b>	NO 39 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1046466
<b>HER Number</b>	19002
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458570
<b>Northing</b>	222340
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling, now offices. Late C16/early C17            OFFICE (Now, Undated)            SITE (Unknown date)            Covering Building            Material            TILE            Main Building            Material</p>

## Site Gazetteer



<b>Description</b>	<p>ROUGHCAST            Main Building            Material            TIMBER            SHOP (Late C16, Post Medieval - 1567 AD to 1599 AD)            TIMBER FRAMED HOUSE (Late C16, Post Medieval - 1567 AD to 1599 AD)            SHOP (Early C17, Post Medieval - 1600 AD to 1632 AD)            TIMBER FRAMED HOUSE (Early C17, Post Medieval - 1600 AD to 1632 AD)            SP58225 BICESTER MARKET SQUARE            3/83 (South side)            20/03/70 No.39            GV II            Roughcast timber framing; old plain-tile roof with rubble and brick end stack. 2-unit gable-fronted plan. 2 storeys plus attics. Front has renewed 2- and 3-light casements to the upper floors plus a C20 shop window and entrance. Left return wall retains a horizontal-sliding sash with old glazing, and has a 4-panel door and C20 shop window. To rear of steep-pitched roof is a massive rubble-based stack, probably shared with No.40, Kings Arms Hotel (q.v.), with 3 rebuilt diagonal shafts. Interior: massive stop-chamfered beams with heavy square joists; winder stair from cellar to attics; some 2-panel doors and a fragment of C17 panelling; butt-purlin roof with curved windbraces. Possibly originally part of Kings arms Hotel. (V.C.H.: Oxfordshire, p.455). Listing NGR: SP5857022340            &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/83, p.39 (Index). SOX260.            &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063</p>
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<b>Site Number</b>	134
<b>Site Name</b>	NO 33 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1046468
<b>HER Number</b>	19008
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458511
<b>Northing</b>	222342
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling. Late C17/early C18 and late C18/early C19            SITE (Unknown date)            Covering Building            Material            TILE            Covering Building            Material            WELSH SLATE            Main Building            Material            BRICK            Main Building            Material            LIMESTONE            Main Building            Material</p>

## Site Gazetteer



RENDER  
Main Building  
Material  
RUBBLE  
HOUSE (Late C17, Post Medieval - 1667 AD to 1699 AD)  
SHOP (Late C17, Post Medieval - 1667 AD to 1699 AD)  
HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)  
SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD)  
HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD)  
SHOP (Late C18, Post Medieval - 1767 AD to 1799 AD)  
HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)  
SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD)  
SP5822S BICESTER MARKET SQUARE  
3/89 (South side)  
20/03/70 No.33  
GV II  
Rendered brick, and limestone rubble with wooden lintels; Welsh-slate and old plain-tile roofs. Main range plus long rear wing. 3 storeys and 2 storeys. Rendered 2-window front, with stucco first-floor sill band, has 12-pane first-floor sashes, 6-pane second-floor sashes, and has a deeply-projecting C19 fascia on heavy carved brackets with a cast-iron cresting. Lower rubble rear wing is earlier with a steep-pitched tiled roof, and has irregular fenestration including a tripartite sash. Interior not inspected. Included for group value.  
Listing NGR: SP5851122342  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/89, p.42 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063

<b>Site Number</b>	135
<b>Site Name</b>	NO 4 (WHITE HART INN), SHEEP STREET
<b>Type of Site</b>	Inn
<b>NMRS Number</b>	1046474
<b>HER Number</b>	19025
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458585
<b>Northing</b>	222431
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Inn. Probably late C17/early C18SITE (Unknown date) Covering Building Material TILE Main Building Material LIMESTONE Main Building Material ROUGHCAST Main Building Material RUBBLE INN (Late C17, Post Medieval - 1667 AD to 1699 AD)

## Site Gazetteer



INN (Early C18, Post Medieval - 1700 AD to 1732 AD)  
INN (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SP5822S BICESTER SHEEP STREET  
3/109 (East side)  
20/03/70 No.4 (White Hart Inn)  
GV II  
Part-roughcast limestone rubble with wooden lintels; old plain-tile roofs. Main range plus long rear wing. 2 storeys. Roughcast front has a flat-roofed rubble ground-floor extension, largely rebuilt C20, but retains a 12-pane sash at first floor plus a similar sash in a further bay, to left, extending over a vehicle entry. Rubble rear wing, returning on right has casements. Gabled stair projection rises in angle of ranges. Interior: heavy chamfered beams. Listing NGR: SP5858522431  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/109, p.52 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	136
<b>Site Name</b>	NO 1 CHAPEL STREET
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046479
<b>HER Number</b>	18939
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458480
<b>Northing</b>	222265
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House. Late C18/early C19 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material LIMESTONE Main Building Material RUBBLE HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD) HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) SP5822S BICESTER CHAPEL STREET 3/14 (East side) 20/03/70 No.1 GV II Coursed limestone rubble with wooden lintels; Welsh-slate roof with brick gable stacks. 2-unit plan. 2 storeys. Symmetrical 3- window front has a recessed central doorway with a 6-panel door, approached by a flight of steps; windows have 12-pane sashes except those above and to right of the door which are blind. Blocked doorway to extreme right may have served a basement. Interior not inspected. Listing NGR: SP5848022265 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/14, p.6 (Index). SOX260.

## Site Gazetteer



<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	137
<b>Site Name</b>	HOME FARMHOUSE, KINGS END
<b>Type of Site</b>	Farmhouse
<b>NMRS Number</b>	1046491
<b>HER Number</b>	18967
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458119
<b>Northing</b>	222411
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Farmhouse, now house. C17  HOUSE (Now, Undated)  SITE (Unknown date)  Covering Building  Material  TILE  Main Building  Material  LIMESTONE  Main Building  Material  ROUGHCAST  Main Building  Material  RUBBLE  FARMHOUSE (C17, Post Medieval - 1600 AD to 1699 AD)  SP5822S BICESTER KINGS END  3/47 (South side)  20/03/70 Home Farmhouse  GV II  Roughcast limestone rubble with wooden lintels; plain-tile roof with rubble and brick ridge stacks. 4-unit plan with rear wing. 2 storeys and one storey plus attic. 4-window front has a 4-panel door, to right of centre, in a large wooden porch with flanking settles incorporating some C17 panelling; first-floor casements of 2, 3, 3 and 4 lights, and ground-floor casements of 2, 3, 2 and 4 lights; all have leaded glazing; small blocked first-floor window to extreme left. Roof has large rubble-based stacks to right gable and to left of the entrance (the latter with diagonal stacks and both with renewed brickwork) and has a rebuilt stack on the left gable. Lower rear wing returns from left end. Interior not inspected. (V.C.H.: Oxfordshire, Vol.VI, p.20).  Listing NGR: SP5811922411  &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/47, p.22 (Index). SOX260.  &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	138
<b>Site Name</b>	NO 11 (CLIFTON VILLA), KINGS END

## Site Gazetteer



<b>Type of Site</b>	House
<b>NMRS Number</b>	1046492
<b>HER Number</b>	18969
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458084
<b>Northing</b>	222434
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>House, c.1830  SITE (Unknown date)  Covering Building  Material  WELSH SLATE  Main Building  Material  LIMESTONE  Main Building  Material  RENDER  Main Building  Material  RUBBLE  HOUSE (c1830, Post Medieval - 1810 AD to 1850 AD)  SP5822S BICESTER KINGS END  3/49 (South side)  22/07/76 No.11 (Clifton Villa)  GV II  Part-rendered coursed limestone rubble; Welsh-slate roof with brick end stacks. L-plan. 2 storeys. Symmetrical 3-window rendered front with plinth and flanking pilasters, has a central doorway with 2-panel door overlight and pilastered stucco doorcase; windows have 12-pane sashes. Rubble rear and rear wing have further sashes. Interior not inspected. Listing NGR: SP5808422434  &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/49, p.23 (Index). SOX260.  &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063</p>

<b>Site Number</b>	139
<b>Site Name</b>	NO 25 CAUSEWAY
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1046517
<b>HER Number</b>	18936
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458371
<b>Northing</b>	222297
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. Late C18/early C19 with C17/early-C18 wing

SITE (Unknown date)  
 Covering Building  
 Material  
 TILE  
 Covering Building  
 Material  
 WELSH SLATE  
 Main Building  
 Material  
 LIMESTONE  
 Main Building  
 Material  
 RENDER  
 Main Building  
 Material  
 RUBBLE  
 HOUSE (Late C17, Post Medieval - 1667 AD to 1699 AD)  
 SHOP (Late C17, Post Medieval - 1667 AD to 1699 AD)  
 HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD)  
 SHOP (Late C18, Post Medieval - 1767 AD to 1799 AD)  
 HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)  
 SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD)  
 SHOP (Late C19, Post Medieval - 1867 AD to 1899 AD)  
 SP5822S BICESTER CAUSEWAY  
 3/10 (South side)  
 20/03/70 No.25  
 GV II  
 Render and limestone rubble; Welsh-slate roof with brick stacks. 2-unit plan with rear wing. 3 storeys. 3-window rendered front, with plain parapet and first-floor storey band, is symmetrical above ground floor and has mid-C19 sashes, with margin lights, flanking blind windows. At ground floor, architraved window to right has a cornice and plain frieze; late-C19 shop window to left has a central glazing bar and shaped heads to the panes; the fascia, which extends over the central doorway, has a cornice and flanking consoles. Shallow-pitched roof has crested ridge tiles. Lower rubble rear wing. Interior not inspected. Listing NGR: SP5837122297  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/10, p.4 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 140  
**Site Name** NO 4 MARKET SQUARE  
**Type of Site** Offices  
**NMRS Number** 1200301  
**HER Number** 18998  
**Status** Listed Building- Grade II  
**Easting** 458590  
**Northing** 222379  
**Parish** Bicester

**Council** Cherwell District Council  
**Description** House, now offices. Early C18, altered late C18 and C20  
 OFFICE (Now, Undated)  
 SITE (Unknown date)  
 Covering Building  
 Material  
 WELSH SLATE  
 Main Building  
 Material  
 BRICK  
 Main Building  
 Material  
 LIMESTONE  
 Main Building  
 Material  
 RUBBLE  
 Main Building  
 Material  
 STONE  
 HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD)  
 HOUSE (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
 SP5822S BICESTER MARKET SQUARE  
 3/79 (East side)  
 31/01/52 No.4  
 GV II  
 Chequer brick with painted stone dressings, and limestone rubble; Welsh-slate roof with brick stack. Double-depth plan. 3 storeys. Symmetrical 5-window front, with storeybands and wooden dentil cornice, has painted rustication to the stone ground-floor wall, and is brick above. Central doorway has a wide plain architrave with double-stepped keyblock, and a flat canopy with dentil cornice on scroll brackets, and it is flanked by wide tripartite sashes, probably a late-C18 alteration. Upper windows have 4-pane C19 sashes, except those in the outer bays which are blind and have painted glazing bars; all have wedge lintels and projecting stone aprons. A large stack rises from the rubble return wall to left. Hipped roof has 2 gables to rear. Interior: open-well stair with closed string, moulded handrail, turned newels and balusters, and winders; panelled ground-floor room with moulded cornice and arched display niche beside the corner fireplace; panelled first-floor room with moulded cornice. Part of ground floor is now continuous with the sales area of No.3 (not included). (V.C.H.: Oxfordshire, Vol.VI, p.18).  
 Listing NGR: SP5859022379  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/79, p.37 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 141  
**Site Name** NO 31 MARKET SQUARE  
**Type of Site** Shop and House  
**NMRS Number** 1200458  
**HER Number** 19009  
**Status** Listed Building- Grade II  
**Easting** 458497  
**Northing** 222336

## Site Gazetteer



<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling. Early C18 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material RENDER Main Building Material TIMBER SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD) TIMBER FRAMED HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD) SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER MARKET SQUARE 3/90 (South side) 20/03/70 No.31 GV II Rendered timber framing; Welsh-slate roof with brick end stack. Double-depth plan. 3 storeys plus attics, Front has a tripartite sash at first floor and a double sash at second floor; mansard roof has deep boxed eaves, and the stack to left has a cluster of old shafts. C20 shop front. Interior: winder stairs on upper floors. Large C20 extension to rear is not of special architectural interest. Listing NGR: SP5849722336 &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/90, p.42 (Index). SOX260. &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	142
<b>Site Name</b>	NO 10 SHEEP STREET
<b>Type of Site</b>	Bank
<b>NMRS Number</b>	1200545
<b>HER Number</b>	19024
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458581
<b>Northing</b>	222458
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>House, now bank. Late C18/early C19, altered mid C19 and C20 BANK (FINANCIAL) (Now, Undated) SITE (Unknown date) Main Building Material RENDER Main Building Material STUCCO HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD) HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)</p>

## Site Gazetteer



<b>Site Number</b>	143
<b>Site Name</b>	NO 30 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1369753
<b>HER Number</b>	19010
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458490
<b>Northing</b>	222335
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>HOUSE (Mid C19, Post Medieval - 1833 AD to 1866 AD) HOUSE (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER SHEEP STREET 3/108 (East side) 22/07/76 No.10 GV II Rendered walls with stucco dressings. Double-depth plan, now extended. 3 storeys. 6-window front, with plinth, storeybands and moulded cornice, has a rusticated ground floor, on the right breaking around a full-height pilaster, and on the left around an added 5-sided full-height projection with 3 windows at each floor. The main doorway, in bay 4, is centrally placed and has a mid-C19 stone porch; to right of it is a blind window, and to extreme right an arched secondary entrance. Canted section has 4-light sashes, but remaining windows have earlier 12-pane sashes, all first-floor windows with moulded architraves. High plain parapet conceals the roof. Interior not inspected. Probably originally a flat 5-window front. Listing NGR: SP5858122458 &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/108, p.52 (Index). SOX260. &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	143
<b>Site Name</b>	NO 30 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1369753
<b>HER Number</b>	19010
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458490
<b>Northing</b>	222335
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Shop and dwelling. 1751 on datestone, probably partly earlier SITE (Unknown date) Covering Building Material TILE Main Building Material BRICK DATE STONE (1751, Post Medieval - 1751 AD) HOUSE (1751, Post Medieval - 1751 AD) SHOP (1751, Post Medieval - 1751 AD) SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER MARKET SQUARE 3/91 (South side) 20/03/70 No.30 GV II Chequer brick with flared headers; concrete plain-tile roof with brick end stacks. 2-unit plan. 2 storeys plus attics. Symmetrical 2-window front has 4-pane sashes at first floor, with rubbed and gauged flat arches, and has a central datestone inscribed "H/RL/1751"; the moulded eaves cove is partly boxed over but continues from the plaster cove of No.29 (q.v.) to right. C20 shop front. Steep-pitched roof has 2 flat-headed roof dormers. Interior not inspected. (V.C.H.: Oxfordshire, Vol.VI, p.18; Buildings of England: Oxfordshire, p.456). Listing NGR: SP5849022335</p>

## Site Gazetteer



<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/91, p.43 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	144
<b>Site Name</b>	NOS 2 AND 4 CHURCH STREET
<b>Type of Site</b>	Houses
<b>NMRS Number</b>	1369758
<b>HER Number</b>	18941
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458340
<b>Northing</b>	222340
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Pair of semi-detached houses. c.1840 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material LIMESTONE Main Building Material RENDER Main Building Material STUCCO DETACHED HOUSE (c1840, Post Medieval - 1820 AD to 1860 AD) SP5822S BICESTER CHURCH STREET 3/16 (North side) 22/07/76 Nos.2 and 4 GV II Coursed squared limestone with stucco dressings; Welsh-slate roofs with rendered ridge stack. Double-depth central block with recessed wings. 2 storeys. 2-window central section has stuccoed bay windows with cornices and tripartite sashes, and has segmental-arched first-floor sashes with moulded architraves and margin lights. Narrow wings each have a doorway with a stucco pilastered doorcase below a narrow round-headed architraved sash. Shallow-pitched hipped roofs have boxed eaves and there is a large central stack. Interiors not inspected. Listing NGR: SP5834022340 &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/16, p.7 (Index). SOX260. &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	145
<b>Site Name</b>	NO 1 (STOW HOUSE), KINGS END

## Site Gazetteer



<b>Type of Site</b>	House
<b>NMRS Number</b>	1369765
<b>HER Number</b>	18965
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458198
<b>Northing</b>	222363
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>House. Late C17, altered C19 SITE (Unknown date) Covering Building Material TILE Main Building Material LIMESTONE Main Building Material RUBBLE HOUSE (Late C17, Post Medieval - 1667 AD to 1699 AD) DATE STONE (168?, Post Medieval - 1680 AD to 1689 AD) HOUSE (C19, Post Medieval - 1800 AD to 1899 AD) SP5822S BICESTER KINGS END 3/45 (South side) 20/03/70 No.1 (Stow House) GV II Coursed limestone rubble with wooden lintels; fish-scale tile roof with brick end stacks. L-plan. 2 storeys plus attics. 2-window front has a 4-panel door to left of centre, a tripartite sash to right, and has 9-pane sashes at first floor. Steep-pitched roof has a 2-light roof dormer to right. Left gable wall steps around a chimney projection, carrying C18 paired stacks, and has two 9-pane sashes plus a datestone inscribed "168(?)", Rear has further sashes and a dormer, plus a gabled stair projection which adjoins the rear wing. Interior: 2-storey stair hall with early-C19 stair; upper flight of winder stair; butt-purlin roof. (V.C.H.: Oxfordshire, Vol.VI, p.20). Listing NGR: SP5819822363 &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/45, p.21 (Index). SOX260. &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	146
<b>Site Name</b>	NO 35 MARKET SQUARE
<b>Type of Site</b>	Public House
<b>NMRS Number</b>	1046467
<b>HER Number</b>	19006
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458532
<b>Northing</b>	222343
<b>Parish</b>	Bicester

**Council** Cherwell District Council

**Description** Public house, now restaurant and dwelling. Late C18/early C19  
 HOUSE (Now, Undated)  
 RESTAURANT (Now, Undated)  
 SITE (Unknown date)  
 Covering Building  
 Material  
 WELSH SLATE  
 Main Building  
 Material  
 RENDER  
 Main Building  
 Material  
 STUCCO  
 PUBLIC HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD)  
 PUBLIC HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)  
 SP5822S BICESTER MARKET SQUARE  
 3/87 (South side)  
 20/03/70 No.35  
 (Formerly listed as The Red Lion Inn)  
 GV II  
 Rendered walls with some stucco dressings; Welsh-slate roof. Main range plus rear wing. 5 storeys. Symmetrical 3-window rendered front, with plinth and first-floor sill band, has a central pilastered stucco doorcase with entablature, and has flanking tripartite sashes, 12-pane first-floor sashes, and 6-pane second-floor sashes. Interior not inspected. Listing NGR: SP5853222343  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/87, p.41 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 147

**Site Name** NOS 29 & 29A MARKET SQUARE

**Type of Site** Shop and House

**NMRS Number** 1046469

**HER Number** 19011

**Status** Listed Building- Grade II

**Easting** 458480

**Northing** 222336

**Parish** Bicester

**Council** Cherwell District Council

**Description** Shop and dwelling. Early C18, possibly partly earlier, and early C19  
 SITE (Unknown date)  
 Covering Building  
 Material  
 TILE  
 Covering Building  
 Material  
 WELSH SLATE  
 Main Building  
 Material  
 BRICK

**Main Building**  
 Material  
 LIMESTONE  
**Main Building**  
 Material  
 RENDER  
**Main Building**  
 Material  
 RUBBLE  
 HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 OUTBUILDING (C18, Post Medieval - 1700 AD to 1799 AD)  
 HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)  
 SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD)  
 SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
 SP5822S BICESTER MARKET SQUARE  
 3/92 (South side)  
 20/03/70 Nos.29 and 29A  
 GV II  
 Part-rendered brick, limestone rubble, and chequer brick with yellow headers; plain-tile and Welsh-slate roofs with brick stacks. 4 ranges surrounding a courtyard. 2 storeys plus attics and 2 storeys. No.29, to left, has a rendered 2-window front with a moulded eaves cove and two 12-pane first-floor sashes; the sleep-pitched roof has 2 hipped roof dormers. The taller brick bay to right (No.29A) has a large elaborately-moulded stone-mullioned window at first floor (probably C19), and the moulded dentil cornice continues from that of No.28 (q.v.) to right. C20 shop front extends across both sections. The 2-storey 3-window range to rear of No.29A has a rubble ground floor, above which is early-C19 chequer brickwork with very large sashes. Rubble and brick outbuilding ranges to rear of No.29, probably mostly C18, form the other 2 sides of the courtyard. Interior: No.29 has closely-spaced heavy chamfered beams at ground floor which could be C16/early C17. No.29A originally formed part of Ambrosden House (q.v. No.28) to right. (V.C.H.: Oxfordshire, Vol.VI, p.18). Listing NGR: SP5848022336  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/92, p.43 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 148

**Site Name** 40 SHEEP STREET

**Type of Site** Shop and House

**NMRS Number** 1046472

**HER Number** 19019

**Status** Listed Building- Grade II

**Easting** 458503

**Northing** 222547

**Parish** Bicester

**Council** Cherwell District Council

**Description** SITE (Unknown date)  
 Covering Building  
 Material  
 WELSH SLATE  
 Main Building  
 Material

## Site Gazetteer



RENDER  
 HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD)  
 SHOP (Late C18, Post Medieval - 1767 AD to 1799 AD)  
 HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)  
 SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD)  
 SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
 SP5822N BICESTER SHEEP STREET  
 2/102 (East side)  
 20/03/70 No.40  
 GV II  
 Rendered walls; Welsh-slate roof with rendered stack. Narrow double-depth plan. 3 storeys. Front has a 12-pane sash at first floor and a 9-pane sash above; C20 shop front. Shallow-pitched roof. Interior not inspected. Listing NGR: SP5850322547  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 2/102, p.49 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	149
<b>Site Name</b>	WAR MEMORIAL APPROXIMATELY 15 METRES
<b>Type of Site</b>	War Memorial
<b>NMRS Number</b>	1046484
<b>HER Number</b>	18947
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458281
<b>Northing</b>	222304
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	War memorial. c.1918, inscription altered c.1945. WWI and WWII names. WAR MEMORIAL (constructed 1945, Modern - 1901 AD to 2050 AD) Evidence STRUCTURE WAR MEMORIAL (constructed 1918, Modern - 1901 AD to 2050 AD) Evidence STRUCTURE SP5822S BICESTER CHURCH STREET (South side) 3/25 War memorial approx. 15m. NW of Church of St. Edburg GV II Limestone. Tapering octagonal shaft with broach stops rises from a square base, with a moulded top, resting on an octagonal 3-step plinth, the lowest step forming a seat and bearing a commemorative inscription; the elaborate carved head has representations of the Crucifixion and the Virgin and Child on the gabled sides, and of St. George and a bishop on the lesser sides. Included for group value. Listing NGR: SP5828122304 2) Transferred to Oxon History Centre. <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/25, p.11 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

## Site Gazetteer



<b>Site Number</b>	150
<b>Site Name</b>	SUNDIAL APPROXIMATELY 22 METRES SOUTH
<b>Type of Site</b>	Sundial
<b>NMRS Number</b>	1046485
<b>HER Number</b>	18951
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458310
<b>Northing</b>	222244
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Sundial. Late C17/early C18 SITE (Unknown date) Main Building Material LIMESTONE SUNDIAL (Late C17, Post Medieval - 1667 AD to 1699 AD) SUNDIAL (Early C18, Post Medieval - 1700 AD to 1732 AD) SP5822S BICESTER CHURCH STREET (South side) 3/29 Sundial approx. 22m. S of Church of St. Edburg GV II Limestone. Square shaft has a moulded cap and base, and stands on a square 2-step plinth. Gnomon and dial are missing. Listing NGR: SP5831022244 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/29, p.13 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063

<b>Site Number</b>	151
<b>Site Name</b>	NO 23 CAUSEWAY
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1046516
<b>HER Number</b>	18935
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458382
<b>Northing</b>	222302
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. Late C18/early C19; mid/late-C19 shop front SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material RENDER



HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD)  
 SHOP (Late C18, Post Medieval - 1767 AD to 1799 AD)  
 HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD)  
 SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD)  
 SHOP (Mid/late C19, Post Medieval - 1833 AD to 1899 AD)  
 SP5822S BICESTER CAUSEWAY  
 3/9 (South side)  
 22/07/76 No.23  
 GV II  
 Rendered walls; Welsh-slate roof. 2-unit plan. 3 storeys. 2-window front has 12-pane sashes at second floor and later horned 4-pane sashes at first floor; shop front has a moulded cornice and the right window has glazing bars; small segmental -arched entrance to extreme right. Shallow-pitched roof has a stack to right. Interior not inspected. Listing NGR: SP5838222302  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/9, p.4 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 152  
**Site Name** NO 9 LONDON ROAD  
**Type of Site** House  
**NMRS Number** 1200116  
**HER Number** 18976  
**Status** Listed Building- Grade II  
**Easting** 458658  
**Northing** 222274  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** House. Early C13, altered C19  
 SITE (Unknown date)  
 Covering Building  
 Material  
 TILE  
 Main Building  
 Material  
 LIMESTONE  
 Main Building  
 Material  
 RENDER  
 Main Building  
 Material  
 RUBBLE  
 HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 HOUSE (C19, Post Medieval - 1800 AD to 1899 AD)  
 SP5822S BICESTER LONDON ROAD  
 (East side)  
 3/56 No.9  
 GV II  
 Part-rendered limestone rubble; plain-tile roof with brick gable stacks; 2-unit plan extended to 3 units, 2 storeys. 2 bays to left of rendered 3-window front are probably earlier, and have the doorway to right with a canopy on fluted C19 cast-iron columns with ornamental brackets; windows have small-pane casements. Bay to right has a C19/C20 bay window below a 2-light

casement. Stack to left of steep-pitched roof has 2 linked shafts of narrow brick. Sides and rear are rubble. Interior: walls are unusually thick (approximately 600mm) and there are 2 massive chimney breasts. Listing NGR: SP5865822274  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/56, p.26 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 153  
**Site Name** NO 44 MARKET SQUARE  
**Type of Site** Shop and House  
**NMRS Number** 1200169  
**HER Number** 18981  
**Status** Listed Building- Grade II  
**Easting** 458545  
**Northing** 222387  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Shown as Nos.44 and 53 on Ordnance Survey map. Shop and dwelling. Probably C17, remodelled early C18 and C19  
 SITE (Unknown date)  
 Covering Building  
 Material  
 LEAD  
 Main Building  
 Material  
 RENDER  
 Main Building  
 Material  
 STUCCO  
 Main Building  
 Material  
 TIMBER  
 HOUSE (C17, Post Medieval - 1600 AD to 1699 AD)  
 JETTIED HOUSE (C17, Post Medieval - 1600 AD to 1699 AD)  
 SHOP (C17, Post Medieval - 1600 AD to 1699 AD)  
 TIMBER FRAMED HOUSE (C17, Post Medieval - 1600 AD to 1699 AD)  
 TOWN HOUSE (C17, Post Medieval - 1600 AD to 1699 AD)  
 SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 TIMBER FRAMED HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)  
 SHOP (C19, Post Medieval - 1800 AD to 1899 AD)  
 TIMBER FRAMED HOUSE (C19, Post Medieval - 1800 AD to 1899 AD)  
 SP5822S BICESTER MARKET SQUARE  
 3/62 No.44  
 20/03/70  
 GV II  
 Rendered timber framing with stucco dressings; lead flat roof with rendered stacks. Single range. 3 storeys. 3 fronts of 2, 5 and 2 windows, all with a heavy moulded wooden cornice, rusticated vermiculated quoins and architraved C19 sashes with similar quoins and stucco wedge lintels. West front and part of north front retain a first-floor jetty and have a shaped bracket at the angle, a canted ground-floor bay window to north and, to west, a C20 doorway with stucco quoins. Interior: some fielded panelling at ground and first floors; upper floors

have 2-panelled doors and an early-C18 open-well stair with winders, moulded closed string and handrail, and turned balusters. Probably originally a substantial townhouse. With Nos.45 and 52 (q.v.), forms a prominent group on an island site. (V.C.H.: Oxfordshire, Vol.VI, p.18). Listing NGR: SP5854522387  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/62, p.29 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	154
<b>Site Name</b>	NO 34 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1200451
<b>HER Number</b>	19007
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458520
<b>Northing</b>	222341
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. C17 SITE (Unknown date) Covering Building Material TILE Main Building Material BRICK Main Building Material LIMESTONE Main Building Material RENDER Main Building Material RUBBLE Main Building Material TIMBER TIMBER FRAMED HOUSE (C17, Post Medieval - 1600 AD to 1699 AD) SHOP (Late C19, Post Medieval - 1867 AD to 1899 AD) SP5822S BICESTER MARKET SQUARE 3/88 (South side) 20/03/70 No.34 GV II Part-rendered limestone rubble and timber framing with brick infill; old plain-tile roof with brick end stacks. L-plan. 2 storeys plus attics. Rendered front has 2 wide C20 casements above a projecting late-C19 shop front with canted bay windows flanking double doors; wide vehicular entry to right has a heavy chamfered lintel. Steep-pitched roof has 2 small flat-headed roof dormers. Walling above rear of archway is timber framed. Rear wing returns from left. Interior: heavy stop-chamfered beams in both ranges; early-C18 dog-leg stair with turned balusters and moulded handrail; 2 small C17 oak panelled doors.

Possibly originally part of the former Red Lion Inn, to left, (q.v. No.35). Listing NGR: SP5852022341  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/88, p.42 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	155
<b>Site Name</b>	NOS 29 & 31 SHEEP STREET
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1200565
<b>HER Number</b>	19028
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458474
<b>Northing</b>	222531
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shops and dwellings. Late C18 and C19 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material BRICK Main Building Material LIMESTONE Main Building Material RENDER Main Building Material RUBBLE HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD) SHOP (Late C18, Post Medieval - 1767 AD to 1799 AD) HOUSE (C19, Post Medieval - 1800 AD to 1899 AD) SHOP (Late C19, Post Medieval - 1867 AD to 1899 AD) SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822N BICESTER SHEEP STREET 2/112 (West side) 20/03/70 Nos.29 and 31 GV II Part-rendered coursed limestone rubble; brick; Welsh-slate roof. Single range with central vehicular entry plus rear extensions. 2 storeys. No.29, to left, has a late-C19 shop front with arched window heads and a recessed central door, and has two 12-pane sashes at first floor set in rubble walling; a rendered bay over the central entry has a 9-pane sash. No.31 has C19 double sash over a C20 shop front. No.29 has a small rubble rear range with its ridge parallel to the main range; C19 rear wing of No.31 of brick in Flemish bond. Interiors not inspected. Listing NGR: SP5847422531 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 2/112, p.53

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(Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	156
<b>Site Name</b>	NOS 36 & 38 SHEEP STREET
<b>Type of Site</b>	House
<b>NMRS Number</b>	1300717
<b>HER Number</b>	19020
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458509
<b>Northing</b>	222538
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shown on Ordnance Survey map as No.38. House, now 2 shops and dwelling. Late C18/early C19, altered C20 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material RENDER HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD) HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) HOUSE (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822N BICESTER SHEEP STREET (East side ) 2/103 Nos.36 and 38 20/03/70 (Formerly listed as Nos.34, 36 and 38) GV II Rendered walls; Welsh-slate roof. Single range, extended to rear. 3 storeys. 5-window front; with flanking projecting strips, has 12-pane sashes at first floor and 9-pane sashes above, except in bays one and 2 where there are C20 bay windows at first floor; C20 shop fronts. Shallow-pitched roof. Interior not inspected. Listing NGR: SP5850922538 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 2/103, p.49 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063

<b>Site Number</b>	157
<b>Site Name</b>	NO 28 (AMBROSDEN HOUSE AND LAIRG HOUSE), MARKET SQUARE
<b>Type of Site</b>	Town House
<b>NMRS Number</b>	1300762
<b>HER Number</b>	19012
<b>Status</b>	Listed Building- Grade II

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<b>Easting</b>	458465
<b>Northing</b>	222340
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Substantial town house, now shop and dwelling. Early C18, altered HOUSE (Now, Undated) SHOP (Now, Undated) SITE (Unknown date) Covering Building Material TILE Main Building Material BRICK Main Building Material LIMESTONE Main Building Material RUBBLE DATE STONE (1688, Post Medieval - 1688 AD) TOWN HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD) TOWN HOUSE (C19, Post Medieval - 1800 AD to 1899 AD) SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER MARKET SQUARE 3/93 (South side) 31/01/52 No.28 (Ambrosden House and Lairg House) GV II Colourwashed brick and coursed squared limestone; old plain-tile roofs with brick stacks. Main range plus rear service wings. 2 storeys plus attic and 2 storeys. 6-window brick front, with moulded dentil course, has 12-pane sashes at first floor plus a C20 shop front. Roof has 3 flat-headed roof dormers and is hipped to right, the cornice returning over the angled rubble end wall which has a first-floor sash plus a blocked window below. Lower 3-window rubble rear wing, returning on right was probably remodelled C19 but retains a datestone inscribed "H/RG/1688"; it has 4-pane sashes, segmental-arched at ground floor, plus an inserted doorway. Further 2-storey ranges, parallel to the main range and the wing, are in C18 chequer brick with sash windows and a storey band. Interior not inspected. Ambrosden House formerly included No.29A (q.v.) to left. (V.C.H.: Oxfordshire, Vol.VI, p.18). Listing NGR: SP5846522340 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/93, p.44 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	158
<b>Site Name</b>	NOS 10 AND 12 CHURCH STREET
<b>Type of Site</b>	Houses
<b>NMRS Number</b>	1369759
<b>HER Number</b>	18943
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458292

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<b>Northing</b>	222332
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House, now 2 dwellings. Early/mid C18 SITE (Unknown date) Covering Building Material TILE Main Building Material LIMESTONE Main Building Material RUBBLE HOUSE (Early/mid C18, Post Medieval - 1700 AD to 1766 AD) SP5822S BICESTER CHURCH STREET 3/19 (North side) 22/07/76 Nos.10 and 12 GV II Limestone rubble with wooden lintels; plain-tile roof with brick stacks. Single range of one build with rear wing. 2 storeys. 4- window front has tall C20 transomed casements, and has doorways in bays one and 3. No.10, to right, has an additional ground-floor window between bays 3 and 4. Lower wing to rear of No.10. Interiors not inspected. Listing NGR: SP5829222332 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/19, p.8 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	159
<b>Site Name</b>	NO 22 CHURCH STREET
<b>Type of Site</b>	House
<b>NMRS Number</b>	1369760
<b>HER Number</b>	18946
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458244
<b>Northing</b>	222347
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House. C17; possibly partly earlier SITE (Unknown date) Covering Building Material THATCH Main Building Material LIMESTONE Main Building Material RUBBLE HOUSE (C17, Post Medieval - 1600 AD to 1699 AD) SP5822S BICESTER CHURCH STREET

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	3/23 (North side) 20/03/70 No.22 GV II Colourwashed limestone rubble with wooden lintels; thatch roof with brick ridge stack. 2-unit through-passage plan with rear outshut. 2 storeys. 3-window front breaks forward in the right bay, which has an ancient plank door below a 2-light casement; other bays include 3 old 3-light casements and a wide 4-light window, possibly altered from a shop window or cart entry. Rear includes one small 2-light dormer. Interior: inglenook fireplace backing onto passage. Listing NGR: SP5824422347 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/23, p.9 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.
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<b>Site Number</b>	160
<b>Site Name</b>	25 & 25A MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1369790
<b>HER Number</b>	18995
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458459
<b>Northing</b>	222368
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. C18, possibly partly earlier, altered C19 SITE (Unknown date) Covering Building Material ARTIFICIAL SLATE Covering Building Material CONCRETE Covering Building Material STONE Covering Building Material TILE Main Building Material BRICK Main Building Material LIMESTONE Main Building Material RUBBLE HOUSE (C18, Post Medieval - 1700 AD to 1799 AD) SHOP (C18, Post Medieval - 1700 AD to 1799 AD) HOUSE (C19, Post Medieval - 1800 AD to 1899 AD) SHOP (C19, Post Medieval - 1800 AD to 1899 AD) SP5822S BICESTER MARKET SQUARE

3/76 (North side)  
 20/03/70 Nos.25 and 25A  
 (Formerly listed as No.25)  
 GV II  
 Coursed limestone rubble and colourwashed brick; concrete plain-tile and artificial stone-slate roofs with brick stacks. Main range plus long rear wing. 2 storeys, partly raised to 3 storeys. 2-window brick front has 12-pane sashes at first floor with gauged brick flat arches, and at ground floor has a large C20 bay window flanked by original doorways with 2-panel doors and ornamental overlights. C19 roof has projecting boxed eaves and left verge. Left gable wall is in rubble with brick quoins, and returns to a rubble rear wing: the first part has a canted bay window, 2 sashes at first floor, and further sashes in the C19 brick second floor; the second part has casements to both floors with stop-chamfered lintels, the lower opening formerly a wide doorway. Interior not inspected. Listing NGR: SP5845922368  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/76, p.36 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	161
<b>Site Name</b>	NOS 45 & 52 MARKET SQUARE
<b>Type of Site</b>	Shops
<b>NMRS Number</b>	1046456
<b>HER Number</b>	18982
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458553
<b>Northing</b>	222384
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	2 shops and dwellings. Late C17/early C18 and C18/early C19 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material RENDER Main Building Material TIMBER SHOP (Late C17, Post Medieval - 1667 AD to 1699 AD) TIMBER FRAMED HOUSE (Late C17, Post Medieval - 1667 AD to 1699 AD) SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD) TIMBER FRAMED HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD) SHOP (C18, Post Medieval - 1700 AD to 1799 AD) TIMBER FRAMED HOUSE (C18, Post Medieval - 1700 AD to 1799 AD) SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD) TIMBER FRAMED HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) SP5822S BICESTER MARKET SQUARE 3/63 Nos.45 and 52 20/03/70 GV II Rendered light timber framing; Welsh-slate roofs with brick stacks. Gable-fronted plans, back

to back. Narrow 3-storey front of No.45, facing east, has a tripartite sash at first floor, a 4-pane sash above, and has narrow sashes in the cant to left (all C19); C20 shop front; roof is hipped to front; 4-storey gabled front of No.52, facing west, is probably earlier at ground and first floors, and has a moulded wooden cornice above the renewed 4-light first-floor casement, above which the front wall is set back with further renewed casements; early-C20 shop front, Buildings both back onto a C17 stack with diagonal shafts, rising from a lower roofline. Interior: No.52 has a winder stair, and at first floor has intersecting chamfered beams and some elaborate bolection-mould panelling on the window wall. With No.44 (q.v.), forms a prominent group on an island site. Listing NGR: SP5855322384  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/63, p.29 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	162
<b>Site Name</b>	NOS 49 & 50 MARKET SQUARE
<b>Type of Site</b>	Shops
<b>NMRS Number</b>	1046459
<b>HER Number</b>	18985
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458552
<b>Northing</b>	222361
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	2 shops and dwellings. Late C18, possibly partly earlier SITE (Unknown date) Covering Building Material CONCRETE Covering Building Material TILE Covering Building Material WELSH SLATE Main Building Material RENDER Main Building Material TIMBER HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD) SHOP (Late C18, Post Medieval - 1767 AD to 1799 AD) TIMBER FRAMED HOUSE (Late C18, Post Medieval - 1767 AD to 1799 AD) HOUSE (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER MARKET SQUARE 3/66 Nos.49 and 50 20/03/70 (Formerly listed as Nos.49,49B and 50, 49a listed on 31/01/52) GV II Rendered timber framing; Welsh-slate and concrete plain-tile roofs with brick end stacks. Double-depth plans. 3 storeys. Fronts each have a 12-pane first-floor sash, a 6-pane second-

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floor sash, and have bay shop windows at ground floor, that to No.49 probably C19. Double-gabled right side (No.49) has similar windows plus 12-pane sashes at ground floor; left side (No.50) has a C20 slate-roofed extension at ground floor. 2-span roof, the rear roof steeper and probably earlier. Interiors not inspected. Forms, with No.47 (q.v.), prominent group on an island site. Listing NGR: SP5855222361  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/66, p.31 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	163
<b>Site Name</b>	NO 18 (NORTHAMPTON HOUSE), CHURCH STREET
<b>Type of Site</b>	House
<b>NMRS Number</b>	1046483
<b>HER Number</b>	18944
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458265
<b>Northing</b>	222337
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House. Mid C18, probably partly earlier SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material RENDER HOUSE (Mid C18, Post Medieval - 1733 AD to 1766 AD) SP58225 BICESTER CHURCH STREET 3/21 (North side) 20/03/70 No.18 (Northampton House) GV II Rendered walls; Welsh-slate roof with brick stacks. L-plan. 2 storeys. Symmetrical 4-window front has a central doorway with a 6-panel door, rectangular overlight, and a flat canopy with panelled soffit and scroll brackets; both floors have 12-pane sashes. Roof is hipped to right with a ridge returning to a rear gable but the rear wing returns from the left. Interior not inspected. Listing NGR: SP5826522337 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/21, p.9 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	164
<b>Site Name</b>	NO 1 CAUSEWAY
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1046512

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<b>HER Number</b>	18929
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458448
<b>Northing</b>	222330
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. Late C17, remodelled C18/early C19 SITE (Unknown date) Covering Building Material TILE Covering Building Material WELSH SLATE Main Building Material RENDER Main Building Material RUBBLE HOUSE (Late C17, Post Medieval - 1667 AD to 1699 AD) SHOP (Late C17, Post Medieval - 1667 AD to 1699 AD) HOUSE (C18, Post Medieval - 1700 AD to 1799 AD) SHOP (C18, Post Medieval - 1700 AD to 1799 AD) HOUSE (Early C19, Post Medieval - 1800 AD to 1832 AD) SHOP (Early C19, Post Medieval - 1800 AD to 1832 AD) SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP58225 BICESTER CAUSEWAY 3/3 (South side) 20/03/70 No.1 GV II Rendered rubble; plain-tile and Welsh-slate roofs with rendered gable stack. L-plan. 2 storeys plus attic. Front has two 4- pane sashes above a C20 shop front and, to extreme right, has a narrow window with margin lights above a 4-panel door with overlight. Plain parapet rises above a moulded cornice. Roof has a small 2-light dormer, and a gable parapet and stack to left. Left end wall has pairs of narrow windows to first and second floors, and it returns to the lower slated rear wing which has a wide 6-light first-floor window, with panelled flanking pilasters, above a square shop window with moulded architrave. Interior: 2-panel doors; quarter-turn stair of c.1700, rising to attics, with turned balusters and ball finials. Listing NGR: SP5844822330 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/3, p.2 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	165
<b>Site Name</b>	NO 20 (THE LIMES), CHURCH STREET
<b>Type of Site</b>	House
<b>NMRS Number</b>	1199763
<b>HER Number</b>	18945
<b>Status</b>	Listed Building- Grade II

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<b>Easting</b>	458253
<b>Northing</b>	222342
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Substantial house. Probably mid C18, altered C19            SITE (Unknown date)            Covering Building            Material            WELSH SLATE            Main Building            Material            RENDER            HOUSE (Mid C18, Post Medieval - 1733 AD to 1766 AD)            HOUSE (C19, Post Medieval - 1800 AD to 1899 AD)            SP5822S BICESTER CHURCH STREET            3/22 (North side)            20/03/70 No.20 (The Limes)            GV II            Rendered walls; Welsh-slate roof with rendered gable stacks. Single range with added rear outshut. 3 storeys. 5-window front, with flanking fluted Ionic pilasters, has 4-pane C19 sashes to all floors arranged regularly but not symmetrically; central doorway has Tuscan pilasters and a C19 canopy on shaped brackets. Eaves line probably raised in C19. Interior not inspected.            Listing NGR: SP5825322342            &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/22, p.9            (Index). SOX260.            &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	166
<b>Site Name</b>	CHEST TOMB APPROXIMATELY 20 METRES NORTH OF TOWER OF CHURCH OF ST EDBURG, CHU
<b>Type of Site</b>	Tomb
<b>NMRS Number</b>	1199866
<b>HER Number</b>	18948
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458290
<b>Northing</b>	222304
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Chest tomb. Late C18            SITE (Unknown date)            Main Building            Material            MARLSTONE            CHEST TOMB (Late C18, Post Medieval - 1767 AD to 1799 AD)            CHEST TOMB (1771, Post Medieval - 1771 AD)            SP5822S BICESTER CHURCH STREET            (South side)            3/26 Chest tomb approx. 20m. N of tower of            Church of St. Edburg            GV II</p>

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	<p>Marlstone. Rectangular chest, with moulded base and cover, has rectangular corner balusters, and shaped side and end panels. Inscriptions on sides are now largely illegible but include the date 1771. Listing NGR: SP5829022304            &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/26, p.12            (Index). SOX260.            &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>
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<b>Site Number</b>	167
<b>Site Name</b>	STABLE APPROXIMATELY 5 METRES TO SOUTH WEST OF HOME FARMHOUSE, KINGS END
<b>Type of Site</b>	Stables
<b>NMRS Number</b>	1200065
<b>HER Number</b>	18968
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458104
<b>Northing</b>	222414
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Stable, now outhouse. C18            OUTBUILDING (Now, Undated)            SITE (Unknown date)            Covering Building            Material            TILE            Main Building            Material            LIMESTONE            Main Building            Material            RUBBLE            STABLE (C18, Post Medieval - 1700 AD to 1799 AD)            SP5822S BICESTER KINGS END            (South side)            3/48 Stable approx. 5m. to SW of            11/05/87 Home Farmhouse            GV II            Limestone rubble with wooden lintels; old plain-tile roof. Single short range. 2 storeys. Front and right gable wall have casements to both floors, some blocked, and there is a winged griffon attached to one angle. Interior not inspected. Included for group value. Listing NGR: SP5810422414            &lt;1&gt; Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/48, p.22            (Index). SOX260.            &lt;2&gt; English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.</p>

<b>Site Number</b>	168
<b>Site Name</b>	NO 2 LONDON ROAD

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<b>Type of Site</b>	House
<b>NMRS Number</b>	1200133
<b>HER Number</b>	18977
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458649
<b>Northing</b>	222277
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	House, now part of hotel. Early/mid c17, altered C20; C18 HOTEL (Now, Undated) SITE (Unknown date) Covering Building Material TILE Main Building Material LIMESTONE Main Building Material RUBBLE HOUSE (Early/mid C17, Post Medieval - 1600 AD to 1666 AD) HOUSE (C18, Post Medieval - 1700 AD to 1799 AD) HOUSE (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER LONDON ROAD (West side) 3/58 No.2 31/01/52 GV II Limestone rubble with wooden lintels; old plain-tile roof with rubble-and-brick ridge stack. 3-unit plan with rear service wing. 1 storeys plus attics and 2 storeys. 3-gabled 3-window front retains wooden ovolo-moulded mullioned-and-transomed windows at first floor, but at ground floor has a large inserted vehicular entrance, a C20 doorway, a C20 bay window, and a deep 3-light casement with a rendered wedge lintel which is probably C19. Gable windows are blocked except for a 2-light casement in the left gable. Massive rubble-based stack, to right of centre, has 3 diagonal brick shafts. Central gable to rear. Lower rear wing, returning on right, is probably mostly C18 but extends from a short C17 gabled wing; it has 2 plank doors, casements and a C19 brick external stair leading to an upper door. Interior not inspected. (V.C.H.: Oxfordshire, Vol.VI, p.18; Buildings of England: Oxfordshire, p.456). Listing NGR: SP5864922277 Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/58, p.27 (Index). SOX260.

<b>Site Number</b>	169
<b>Site Name</b>	NO 38 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1200431
<b>HER Number</b>	19003
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458564

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<b>Northing</b>	222333
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. C18, altered C20 SITE (Unknown date) Covering Building Material TILE Covering Building Material WELSH SLATE Main Building Material LIMESTONE Main Building Material RENDER Main Building Material RUBBLE HOUSE (C18, Post Medieval - 1700 AD to 1799 AD) SHOP (C18, Post Medieval - 1700 AD to 1799 AD) HOUSE (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD) SP5822S BICESTER MARKET SQUARE 3/84 (South side) 20/03/70 No.38 GV II Rendered and limestone-rubble walls; Welsh-slate and old plain-tile roofs with rendered stacks. Double-depth plan with long rear wing. 3 storeys and 2 storeys. Rendered 2-window front, with moulded cornice and plain parapet, has 12- and 6-pane sashes at first and second floors, plus a built-out C20 ground floor. Rubble rear wing, returning on left, is of at least 3 builds and has a steep-pitched roof; the main 3-window section has been re-fenestrated, but a lower single-storey section retains older casements. Interior not inspected. Listing NGR: SP5856422333 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/84, p.40 (Index). SOX260. <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063. NO 38 MARKET SQUARE Site Name Building Sources Address/Historic Names Administrative Areas National Grid Reference SP 58564 22333 (point) SP52SE Designations, Statuses and Scorings Description Point Associated resources - None recorded SITE (Unknown date) Covering Building Material TILE Covering Building



Material  
WELSH SLATE  
Main Building  
Material  
LIMESTONE  
Main Building  
Material  
RENDER  
Main Building  
Material  
RUBBLE  
HOUSE (C18, Post Medieval - 1700 AD to 1799 AD)  
SHOP (C18, Post Medieval - 1700 AD to 1799 AD)  
HOUSE (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SP5822S BICESTER MARKET SQUARE  
3/84 (South side)  
20/03/70 No.38  
GV II  
Rendered and limestone-rubble walls; Welsh-slate and old plain-tile roofs with rendered stacks. Double-depth plan with long rear wing. 3 storeys and 2 storeys. Rendered 2-window front, with moulded cornice and plain parapet, has 12- and 6-pane sashes at first and second floors, plus a built-out C20 ground floor. Rubble rear wing, returning on left, is of at least 3 builds and has a steep-pitched roof; the main 3-window section has been re-fenestrated, but a lower single-storey section retains older casements. Interior not inspected. Listing NGR: SP5856422333  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/84, p.40 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	170
<b>Site Name</b>	STABLES APPROXIMATELY 10 METRES TO SOUTH OF THE OLD PRIORY, PRIORY LANE
<b>Type of Site</b>	Stables
<b>NMRS Number</b>	1200504
<b>HER Number</b>	19014
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458429
<b>Northing</b>	222089
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Stables. Probably C18 SITE (Unknown date) Covering Building Material WELSH SLATE Main Building Material LIMESTONE Main Building Material

RUBBLE  
AUGUSTINIAN MONASTERY (Medieval, Medieval to Post Medieval - 1066 AD to 1540 AD)  
GATE (Medieval, Medieval to Post Medieval - 1066 AD to 1540 AD)  
PRIORY (Medieval, Medieval to Post Medieval - 1066 AD to 1540 AD)  
STABLE (C18, Post Medieval - 1700 AD to 1799 AD)  
SP5822S BICESTER PRIORY LANE  
(West side)  
3/97 Stables approx 10m to S of  
20/03/70 The Old Priory  
(Formerly listed as Old Stables, south of  
The Old Priory and built against wall of grounds)  
GV II  
Colourwashed limestone rubble with squared quoins and wooden lintels; Welsh-slate roof. Single range. 2 storeys. Front has irregular fenestration including, at first floor, 4 windows plus a central loft door, and at ground floor, 2 wide and 2 narrow entrances plus 3 windows. Interior not inspected. Rear wall forms part of the garden wall to the The Old Priory (q.v.). Possibly on the site of one of the medieval gates to Bicester Priory. Listing NGR: SP5842922089  
3) Recording by photography and rapid building survey as a condition of LBC under PPG16 did not reveal any remarkable architectural features. The use of free tenon with slotted purlins in the roof is of interest, and is possibly a regional characteristic  
4) There is no reason to suppose that the building is of more than one period, and most of the fittings and features would point to a date of construction in the first half of the C19th. As such it is a good example of a working stable, with accommodation (perhaps for a family) at one end and a single room (probably for another servant) at the other, and space for carts or domestic carriage  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/97, p.47 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.  
<3> Oxford Archaeological Unit, 1995, Architectural records of The Old Stables, Priory Lane, Bicester (Unpublished document). SOX835.  
<4> CBA South Midlands Group, South Midlands Archaeology, Vol 26 (1996) p.67 (Serial). SOX5.

<b>Site Number</b>	171
<b>Site Name</b>	NO 5 (THE OLD COURT HOUSE), SHEEP STREET
<b>Type of Site</b>	Offices
<b>NMRS Number</b>	1200571
<b>HER Number</b>	19030
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458532
<b>Northing</b>	222433
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	OFFICE (Now, Undated) SITE (Unknown date) Covering Building Material LAKE DISTRICT SLATE Covering Building Material WELSH SLATE

Main Building  
 Material  
 ASHLAR  
 Main Building  
 Material  
 LIMESTONE  
 COURT HOUSE (1864, Post Medieval - 1864 AD)  
 SP5822S BICESTER SHEEP STREET  
 3/114 (West side)  
 No.5 (The Old Court House)  
 GV II  
 Coursed squared limestone with ashlar dressings; banded Welsh- and Westmorland-slate roofs with stone stacks. Main range plus rear wing. Gothic style. 2 storeys, now further divided. 4-window front has the entrance to extreme right - a Caernarvon-arched doorway within a pointed-segmental arch with a carved and traceried tympanum - above which is a carved royal arms, and a single-light window, also with a Caernarvon head within a pointed-segmental arch. The other bays all have 3-light stone-mullioned windows with Caernavron heads, the continuous label mould linked to that over the doorway, and running between carved grotesques; at first floor, are tall 2-light windows in pointed-segmental arches with foliage labels stops, all with trefoil-headed lights and central roundels. The tall steep-pitched roof, with crested ridge tiles and 3 triangular dormer ventilators, has large stepped gable parapets plus a similar but smaller gable over the entrance bay. The left main gable contains a large rose window below a pointed-segmental arch. Rear has similar first-floor windows plus a tall lateral stack. Short rear wing returns on left. Interior: arch-braced collar-truss roof with pierced spandrels, the posts springing from stone corbels carved with faces and stiff-leaf foliage.  
 (V.C.H.: Oxfordshire, Vol.VI, p.19; Buildings of England: Oxfordshire, p.456).  
 Listing NGR: SP585322433  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/114, p.54 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	172
<b>Site Name</b>	NO 5 CAUSEWAY
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1369737
<b>HER Number</b>	18931
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458434
<b>Northing</b>	222327
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. Possibly C17, remodelled and extended C19 SITE (Unknown date) Covering Building Material TILE Main Building Material BRICK Main Building

Material  
 RENDER  
 Main Building  
 Material  
 TIMBER  
 SHOP (C17, Post Medieval - 1600 AD to 1699 AD)  
 TIMBER FRAMED HOUSE (C17, Post Medieval - 1600 AD to 1699 AD)  
 HOUSE (C19, Post Medieval - 1800 AD to 1899 AD)  
 SHOP (C19, Post Medieval - 1800 AD to 1899 AD)  
 SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
 SP5822S BICESTER CAUSEWAY  
 3/5 (South side)  
 20/03/70 No.5  
 (Formerly listed as Nos 5 and 5A)  
 GV II  
 Rendered timber framing and brick; plain-tile roof with brick end stack. Single-unit plan, extending over passageway, with added rear wing. 2 storeys. 2-window front is probably timber framed at first floor and has 2 architraved 4-pane sashes, one larger than the other; recessed C20 shop front returns into the passage. Brick wing to rear, Interior not inspected. Possibly originally part of No.7 (q.v.) to right. Included for group value. Listing NGR: SP 58434 22327  
 <1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/5, p.3 (Index). SOX260.  
 <2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

<b>Site Number</b>	173
<b>Site Name</b>	NO 12 MARKET SQUARE
<b>Type of Site</b>	Shop and House
<b>NMRS Number</b>	1369787
<b>HER Number</b>	18986
<b>Status</b>	Listed Building- Grade II
<b>Easting</b>	458530
<b>Northing</b>	222409
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Shop and dwelling. Early C18 and mid C19 SITE (Unknown date) Covering Building Material TILE Covering Building Material WELSH SLATE Main Building Material BRICK Main Building Material LIMESTONE Main Building Material

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RENDER  
Main Building  
Material  
RUBBLE  
Main Building  
Material  
STUCCO  
HOUSE (Early C18, Post Medieval - 1700 AD to 1732 AD)  
SHOP (Early C18, Post Medieval - 1700 AD to 1732 AD)  
HOUSE (Mid C19, Post Medieval - 1833 AD to 1866 AD)  
SHOP (Mid C19, Post Medieval - 1833 AD to 1866 AD)  
SHOP (C20, Post Medieval to Modern - 1900 AD to 1999 AD)  
SP5822S BICESTER MARKET SQUARE  
3/67 (North side)  
20/03/70 No.12  
GV II  
Part-rendered brick, and coursed squared limestone rubble with wooden lintels; Welsh-slate and plain-tile roofs with brick stacks. Narrow double-depth plan with long rear wing. 3 storeys and 2 storeys, plus attics. Rendered 3-storey front, with moulded second-floor storeyband, has a large canted bay window at first floor, and has two 4-pane sashes at second floor, both with ornamental cast-iron guard rails, scalloped blind boxes, and vermiculated stucco keyblocks; C20 shop front. 4- window rubble rear wing retains 2 early-C18 leaded cross windows and has a steep-pitched roof. Interior not inspected. Listing NGR: SP5853022409  
<1> Dept of Environment/DCMS, List of Buildings of Special Architectural or Historic Interest, Cherwell List 68: 3/67, p.32 (Index). SOX260.  
<2> English Heritage (RCHME), 1987-1989, Historic Buildings Photographic Record Card (Photograph). SOX2063.

**Site Number** 174  
**Site Name** Medieval walls and ditch located towards western end of Wesley Lane  
**Type of Site** Walls  
**NMRS Number**  
**HER Number** 17139  
**Status** Non-designated  
**Easting** 458308  
**Northing** 222623  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** The remains of two C13 - C14 walls and a C11 - C12 ditch were uncovered in a small evaluation. DITCH (Medieval - 1200 AD to 1400 AD)  
WALL (Medieval to Post Medieval - 1400 AD? to 1600 AD?)  
(1) The medieval occupation found on this site probably relates to a farmstead or isolated cottage lying outside of the medieval core of Bicester. It is probable that the medieval settlement of Bicester did not extend continuously this far north from Market End.  
<1> John Moore Heritage Services, 2005, Interim Report on Archaeological Watching Brief at Land to the Western End of Wesley Lane, Bicester (Unpublished document). SOX1747.

**Site Number** 175

## Site Gazetteer



**Site Name** Medieval building and related features to rear of 17- 19 London Road  
**Type of Site** Building  
**NMRS Number**  
**HER Number** 17337  
**Status** Non-designated  
**Easting** 458723  
**Northing** 222300  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** A C14th building was recorded along with a French drain of horn cores was recorded and another stone lined drain was located in front. Associated garden/market garden features also encountered, as was a stone lined well.  
DITCH (Unknown to Medieval)  
BEAM SLOT (Medieval - 1066 AD to 1539 AD)  
BUILDING (Medieval - 1066 AD to 1539 AD)  
DRAIN (Medieval - 1066 AD? to 1539 AD?)  
FLOOR (Medieval - 1066 AD to 1539 AD)  
PIT (Medieval - 1066 AD to 1539 AD)  
WELL (Medieval - 1066 AD? to 1539 AD?)  
1) Earlier agricultural features include ditches, gullies and pits which were backfilled prior to the construction of a C14th building. Building material found in a layer below this building could suggest either an earlier building or the construction phase of the one recorded. A French drain aligned north south to the rear of the property with an upper fill of horn cores was recorded along with a second drain to the front of the building. A well was located close to this building in the watching brief phase. Other linear features located are likely to be the remains of garden or market garden features associated with this building. Later agricultural use continued in the area into the C19.  
<1> John Moore Heritage Services, 2006, An Archaeological Excavation at 17, 17A & 19 London Road, Bicester, Oxfordshire (Unpublished document). SOX1790.

**Site Number** 176  
**Site Name** Roman and Saxon occupation evidence at 61 Priory Road  
**Type of Site** Ditches  
**NMRS Number**  
**HER Number** 17407  
**Status** Non-designated  
**Easting** 458510  
**Northing** 222060  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Roman and Saxon ditches were recorded in an excavation; also found were few undated post holes  
POST HOLE (Unknown date)  
DITCH (Roman - 43 AD to 409 AD)  
DITCH (Early Medieval/Dark Age - 410 AD to 1065 AD)  
DITCH (Medieval to Post Medieval - 1066 AD? to 1800 AD?)  
1) From evaluation phase: East-West aligned feature 1.05m wide, 0.28m deep with a flat base

and 75 degree sloping sides (13). The fill was dark brown sandy silts containing 5 sherds of pottery of late Saxon date, animal bone and flint. Second cut feature 0.5m wide and 1.8m deep. This feature extended across S end of the trench and possibly represents another ditch feature. Grey sandy-silt fill with animal bone, late Saxon pottery and flint. Pottery was shell tempered. Animal bone very fragmented. Flint residual

2) Following on from an earlier evaluation a small excavation recorded a small number of Roman and Saxon features. A number of residual Roman pottery sherds were recovered but only one feature, an east west Ditch was actually dated to this period. Three other ditches, also aligned roughly east west, were dated to the Saxon Period included the ditch recorded as (13) in the eval phase. A number of post holes could not be securely dated but a small sherd of Roman pottery was found in one and a fragment of Saxon pot was recovered from another. A modern brick built culvert was cut into an earlier ditch thought to be a roadside ditch from the medieval road out of Bicester towards Aylesbury however, because of the building of the culvert all dating evidence had been previously removed

3) A small excavation near the core of Bicester revealed a Roman ditch, late Saxon occupation and residual pottery from the earlier Saxon period. There was no evidence of any later use of the site until the C19th although it was alongside a road with probable medieval origins and not far from the Priory

<1> Oxford Archaeology, 2003, 61 Priory Road, Bicester - Evaluation Report (Unpublished document). SOX347.

<2> Thames Valley Archaeological Services, 2006, Roman and Saxon Features at 61 Priory Road, Bicester, Oxfordshire: Draft Publication Report (Unpublished document). SOX1834.

<3> Oxford Architectural & Historical Society, Oxoniensia, Vol LXXV (2010) pp.127-136 (Serial). SOX284.

Roman and Saxon occupation evidence at 61 Priory Road

Site Name  
Monument  
Sources  
Address/Historic Names - None recorded  
Administrative Areas  
National Grid Reference  
SP 58510 22060 (point) SP52SE  
Associated Designations  
Designations, Statuses and Scorings  
Description  
Point  
Associated resources - None recorded  
POST HOLE (Unknown date)  
DITCH (Roman - 43 AD to 409 AD)  
DITCH (Early Medieval/Dark Age - 410 AD to 1065 AD)  
DITCH (Medieval to Post Medieval - 1066 AD? to 1800 AD?)  
Civil Parish BICESTER, CHERWELL, OXFORDSHIRE  
(

**Site Number** 177  
**Site Name** Undated wall and paleo channel  
**Type of Site** Wall  
**NMRS Number**  
**HER Number** 17489  
**Status** Non-designated  
**Easting** 458370  
**Northing** 222510

**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Various features identified during evaluation.  
 BURIED SOIL HORIZON (Unknown date)  
 WALL (Unknown date)  
 Evidence SUB SURFACE DEPOSIT  
 1) Undated wall from Trench 1 and undatable palaeo channel from Trench 4 found during evaluation of extensive area in Bicester town centre.  
 <1> John Moore Heritage Services, 2006, An Archaeological Evaluation For Town Centre Development, Bicester, Oxfordshire (Unpublished document). SOX1875.

**Site Number** 178  
**Site Name** Possible Roman features found at London Road  
**Type of Site** Features  
**NMRS Number**  
**HER Number** 26005  
**Status** Non-designated  
**Easting** 458630  
**Northing** 221620  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Evaluation revealed dense scatter of features on raised ground between two paleo-channels; similar to Roman deposits found immediately W.  
 DITCH (Roman - 43 AD? to 409 AD)  
 PIT (Roman - 43 AD? to 409 AD?)  
 POST HOLE (Roman - 43 AD? to 409 AD)  
 1) Evaluation revealed that two palaeo-channels cross the site leaving a raised part of ground between them which was the focus of the activity. A large amount of ditches, pits and postholes was recorded on the higher ground before it was covered in a layer of alluvial deposit. Activity then moves to the north west of the site and a series of linears are cut into this layer of alluvium suggesting a change from exploiting the wetland resources to agriculture or drainage. Trenches were very wet and little dating evidence was recovered as many features could not be excavated. The picture of the landscape as a marshy area with an island is indicative of the area during the IA and Roman periods.  
 2) DBA in area to E of PRN 15867 revealed some features; strong possibility that further archaeological remains associated with this farmstead could extend into the study area. These might consist of enclosure boundaries, field drainage ditches and animal enclosures.  
 <1> John Moore Heritage Services, 2007, An Archaeological Investigation of Land Off London Road, Bicester, Oxfordshire, Evaluation (Unpublished document). SOX1905.  
 <2> Archaeological & Planning Solutions, 2007, London Road, Bicester, Oxfordshire: Archaeological Desk Based Assessment (Unpublished document). SOX1987.  
 <3> CBA South Midlands Group, South Midlands Archaeology, Issue 38:2008, p49 (Serial). SOX5.

**Site Number** 179  
**Site Name** Late Saxon and early Post Medieval pits at Manor Farm, Bicester

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<b>Type of Site</b>	Pits
<b>NMRS Number</b>	
<b>HER Number</b>	26124
<b>Status</b>	Non-designated
<b>Easting</b>	458250
<b>Northing</b>	222420
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Evaluation trenches recorded two pits, one Late Saxon or Early Medieval and a much larger pit or quarry dated to the Late medieval or Early Post Medieval period.</p> <p>PIT (Early Medieval/Dark Age to Medieval - 410 AD to 1539 AD)</p> <p>EXTRACTIVE PIT (Medieval to Post Medieval - 1066 AD to 1900 AD)</p> <p>1) Two features were recorded, a very small pit to the north of the site was sealed by a layer dated to the late Saxon or Early medieval period and a larger pit, thought to be for quarrying, was dated to the late medieval or early post medieval period. No other features were identified but a large area of the site was developed without recording so further deposits might have existed on site.</p> <p>&lt;1&gt; Thames Valley Archaeological Services, 2007, Manor Farm, Kings End, Bicester, Oxfordshire: Archaeological Recording Action (Unpublished document). SOX2002.</p> <p>&lt;2&gt; CBA South Midlands Group, South Midlands Archaeology, Vol 39 (2009) p.60 (Serial). SOX5.</p>

<b>Site Number</b>	180
<b>Site Name</b>	Mesolithic Flint scatter with Later Prehistoric and Roman features
<b>Type of Site</b>	Flint Scatter
<b>NMRS Number</b>	
<b>HER Number</b>	26128
<b>Status</b>	Non-designated
<b>Easting</b>	457910
<b>Northing</b>	221631
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>Evaluation recorded well preserved in situ Mesolithic worked flint and cores. Also found were evidence of later prehistoric and Roman settlement and agricultural land management, as well as Post Medieval features.</p> <p>ARTEFACT SCATTER (Mesolithic - 10000 BC to 4001 BC)</p> <p>Evidence FIND</p> <p>RING DITCH (Early Neolithic to Roman - 4000 BC to 409 AD)</p> <p>DITCH (Early Neolithic to Medieval - 4000 BC to 1539 AD)</p> <p>POST HOLE (Early Neolithic to Medieval - 4000 BC to 1539 AD?)</p> <p>1) Evaluation recorded a Mesolithic flint scatter on the edge of the flood plain to SE of the site. Assemblage included blades and cores and is very well preserved suggesting a working site nearby. Assemblage is of regional importance. Flint was recovered from a series of undated linears and could be residual in the fills. A number of postholes and two possible ring gullies found to the north west of the site are suggestive of late prehistoric or Roman settlement. Numerous shallow undated ditches found across the site are likely to be related to agriculture spanning a number of periods</p> <p>2) A watching brief in 2010 located a number of post-medieval features including wall foundations and associated demolition material from two post-medieval farm buildings and</p>

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	<p>two boundary ditches. Several small burnt deposits were found sealed by post-medieval soil but lacking dating evidence. Pottery, mostly C18-19, was also found. Modern land drains and service trenches were also present throughout the site</p> <p>&lt;1&gt; Network Archaeology, 2007, Bicester Office Park: Archaeological Trench Evaluation (Unpublished document). SOX2014.</p> <p>&lt;2&gt; John Moore Heritage Services, 2010, An Archaeological Watching Brief at Whitelands Farm, Bicester, Oxfordshire (Unpublished document). SOX2658.</p> <p>&lt;3&gt; CBA South Midlands Group, South Midlands Archaeology, SMA 41 (2011) 39 (Serial). SOX5.</p>
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<b>Site Number</b>	181
<b>Site Name</b>	Multi-period settlement site in SW Bicester
<b>Type of Site</b>	Settlement
<b>NMRS Number</b>	
<b>HER Number</b>	26347
<b>Status</b>	Non-designated
<b>Easting</b>	457334
<b>Northing</b>	222114
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	<p>41 evaluation trenches contained archaeological features/deposits, including EBA barrow, LIA settlement, RB settlement, possible AS features, and Medieval trackways and quarries. Second phase of evaluation confirmed the first.</p> <p>PIT (Unknown date)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>SETTLEMENT (Late Neolithic to Early Bronze Age - 3000 BC to 1501 BC)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>BARROW (Early Bronze Age - 2350 BC to 1501 BC)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>CORN DRYING OVEN (Roman - 43 AD to 409 AD)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>QUARRY (Roman - 43 AD to 409 AD)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>SETTLEMENT (Roman - 43 AD to 409 AD)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>DITCH (Early Medieval/Dark Age - 410 AD to 1065 AD)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>PIT (Early Medieval/Dark Age - 410 AD to 1065 AD)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>POST HOLE (Early Medieval/Dark Age - 410 AD to 1065 AD)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>QUARRY (Medieval - 1066 AD to 1539 AD)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>TRACKWAY (Medieval - 1066 AD to 1539 AD)</p> <p>Evidence SUB SURFACE DEPOSIT</p> <p>2) The geophysical survey has been successful in locating a number of anomalies, some of which have greater archaeological potential than others. The data from across the site is dominated by evidence of ridge and furrow. Two positive circular anomalies have been interpreted as possible BA round barrows with a possible third to the south west. A substantial ditch runs across the site which may form a western boundary to the burial area. Positive linear anomalies in S part of survey area may indicate some form of boundary ditches. Discrete</p>

positive anomalies, thought to be pits, are evident across the survey with a concentration in the N and central areas.

3) The results of the second stage of the evaluation do not significantly alter the results of the first stage. Of the 76 trenches opened, only 5 contained archaeological features and deposits which appeared to be mainly of Romano-British date. The evaluation has demonstrated that the archaeological zones previously identified appear unlikely to extend beyond their currently understood limits

4) Seventeen areas were excavated after being identified by previous evaluation as areas of high archaeological potential, with varying results. Late Iron Age/Romano-British activity included some settlement evidence, domestic activity and possible evidence for quarrying, and a Beaker burial may be associated with possible round barrows identified 200m to the north east.

Features identified during the excavation have revealed a landscape which provides important additions to our understanding of local, regional and national archaeological knowledge.

6) Evaluation targeted cropmarks, geophysical anomalies, blank areas and areas of unknown potential within 6 areas; 134 trenches were dug with 41 having archaeological deposits and features.

<1> CBA South Midlands Group, South Midlands Archaeology, Vol 37 (2007), p 64; Vol 39 (2009) p.66 (Serial). SOX5.

<2> Stratascan, 2006, Land South West of Bicester, Oxfordshire: Geophysical Survey (Unpublished document). SOX2425.

<3> Wessex Archaeology, 2007, Land South West of Bicester, Oxfordshire: Report on Stage 2 Archaeological Evaluation (Unpublished document). SOX2426.

<4> Wessex Archaeology, 2009, Land South-West of Bicester, Oxfordshire: Post-excavation Assessment Report and Updated Project Design for Analysis and Publication (Unpublished document). SOX2427.

<5> Oxford Architectural & Historical Society, Oxoniensia, Vol 76 (2011) pp.173-240. Prehistoric, Romano-British, and Anglo-Saxon Activity at Whitelands Farm (Serial). SOX284.

<6> 2006, Land South West of Bicester, Oxfordshire: Report on Archaeological Evaluation (Stage 1) (Unpublished document). SOX3013.

<b>Site Number</b>	182
<b>Site Name</b>	Remains of Roman road at Wendlebury Road
<b>Type of Site</b>	Road
<b>NMRS Number</b>	
<b>HER Number</b>	27458
<b>Status</b>	Non-designated
<b>Easting</b>	457277
<b>Northing</b>	220929
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Evaluation found archaeological deposits dating from the Roman period ROAD (Roman - 43 AD to 409 AD) Evidence SUB SURFACE DEPOSIT 1) A single trench was excavated and within it was found the remains of a Roman road and a moderate amount of C3-4 Roman pottery. Finds included potter 5y, iron, glass and animal bone which came from a soil build up above a cobbled limestone surface located along the presumed route of a Roman road and almost certainly represents its remains. The absence of any trace of the road from the previous evaluation may suggest either that its line took a course slightly west of Wendlebury road further north or that it had been removed by the

construction of the modern Wendlebury Road at that location

<1a> CBA South Midlands Group, South Midlands Archaeology, SMA 41 (2011) 58 (Serial). SOX5.

<1> Thames Valley Archaeological Services, 2010, Wendlebury Road, Bicester, Oxfordshire (Phase 2): Archaeological Evaluation (Unpublished document). SOX2717.

<b>Site Number</b>	183
<b>Site Name</b>	C12 Augustinian Priory Church With Reliquary at Bryan House
<b>Type of Site</b>	Church
<b>NMRS Number</b>	
<b>HER Number</b>	27461
<b>Status</b>	Non-designated
<b>Easting</b>	458432
<b>Northing</b>	222219
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Evaluation revealed demolition and walls perhaps associated with the apse of the Augustinian Priory church. Excavation in three areas revealed an almost complete plan of the C12 Priory church with a reliquary, thought to be C7 St Edburg, but determined by radiocarbon dating to be much later. CHARNEL PIT (Medieval - 1066 AD to 1539 AD) Evidence SUB SURFACE DEPOSIT CIST (Medieval - 1066 AD to 1539 AD) Evidence FIND INHUMATION (Medieval - 1066 AD to 1539 AD) Evidence FIND PRIORY (C12, Medieval - 1066 AD to 1539 AD) Evidence DEMOLISHED BUILDING 1) The location of the walls do not correspond with walls reported in 1968 and may represent a further building or buildings. Also revealed was evidence for a late medieval or post-medieval house. 2) Excavations revealed an almost complete plan of the eastern end of the Priory church (choir, chapel and chancel) first constructed in c 1183 on land donated by Gilbert Bassett. Three main phases of building works were identified, the earliest being an intact C12 culvert with arched roof. Wall footings of the choir and chapels, which formed the main church building, were 2m wide reaching depths of over 1.5m. The latest phase was a C14 chantry chapel built against the north chapel plus an enlargement of the north transept. These later additions were phased by stratigraphic relationships and documentary evidence of purchased building materials listed in the account rolls. The preservation of the archaeology was best outside the building footprint of the former Bryan House where parts of some floors survived almost in situ. The discoveries within the church included burials with traces of wooden coffins, charnel pits and a stone-lined cist. Two skeletons were radiocarbon dated to the latter half of the C15. The burials are considered to be those of the church benefactors, the priors, and high status canons. Covering the burials were bedding layers for decorated tiled floors. Burials and charnel pits were also located outside the E end of the main church, occupying the space between the end of the church and the stream. Beneath the former Bryan House the floor layers were not surviving, but the walls of the church and below floor levelling deposits were surviving. The N transept was partially revealed and the floor layers within it were hand excavated. The remains of a reliquary, which was probably once displayed within the purbeck marble shrine as St Edburg, were discovered within a lead container buried into the latest floor layer of this part of the church. Within the lead container were the remains of ca 20% of a human skeleton,

lacking the pelvis and skull, thereby making determination of gender impossible, but all bones were considered to be from the same skeleton. Two bones were radiocarbon dated to within 1163-1277 AD. This would suggest that, although they were probably the bones which were displayed on the shrine (now at Stanton Harcourt parish church), they cannot be the remains of the real St Edburg, the daughter of a C7 Saxon Earl. The scientific evidence showed the person had a high marine diet, which suggests that the bones probably belonged to a Prior or member of the aristocracy. Post dissolution demolition layers and intrusive features were also encountered across the site, in particular outside the southern chapel where moulded stone blocks could be seen in rubble layers. During the Post med period the site was left as pasture until the 1940s when the Territorial Army centre was erected, followed by a block of flats in the 1960s (Bryan House). The 2 additional areas located on Chapel Street (A & B) revealed walls and floors of houses which were first constructed in the early Post Med period with many additions and rebuilds over the centuries until they were demolished in the 1960s. The site has now been re-developed into affordable homes and flats. Excavation enabled a more detailed study of the priory which, at 59m length by 31m width, is within the range of the large Augustinian Houses. The burials have enable a study of the high status clergy that lived and died here. The charnel pits, both inside and outside the church, are stratigraphically later than the inhumations, and may represent a change in burial practice towards the end of the C15-16 with groups of people (perhaps plague victims) allowed burial within the church or its area. The finding of the reliquary made national press, and the bones have been established NOT to be the real St Edburg, a C7 nun. It was common for reliquaries to be fake, as the bones within the container were probably a prior. The excavations have shed light on monastic practices rarely discussed and allowed a full analysis of the stratigraphic sequence and buried skeletal remains. <1> John Moore Heritage Services, 2011, Bryan House, Chapel Street: Archaeological Evaluation (Unpublished document). SOX2734. <2> John Moore Heritage Services, 2012, Archaeological Investigations beneath the Former Bryan House, Chapel Street, Bicester, Oxfordshire; plus two additional areas and Watching Brief (Unpublished document). SOX2954.

<b>Site Number</b>	184
<b>Site Name</b>	Two post-medieval crypts at Trinity Restaurant, Chapel Street
<b>Type of Site</b>	Crypts
<b>NMRS Number</b>	
<b>HER Number</b>	27707
<b>Status</b>	Non-designated
<b>Easting</b>	458487
<b>Northing</b>	222280
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Two brick-built crypts, each containing a single skeleton, were uncovered during ground reduction for a new single storey extension to the building. BURIAL (Post Medieval - 1540 AD to 1900 AD) Evidence BURIAL CRYPT (Post Medieval - 1540 AD to 1900 AD) Evidence SUB SURFACE DEPOSIT 1/2) Grave cuts were observed at the eastern end of the site, but burials were not encountered. Three probable grave cuts c.0.50m in width, and two brick-built crypts containing skeletons were observed during watching brief. One of the skeletons was contained in a highly decorated wooden coffin with large iron handles. Three broken headstones were recovered

from the site, which were probably levelled when the chapel went out of use and the present paving slabs laid down. At the SW corner of the site a brick built crypt wa discovered and the skeleton recorded; a second brick vaulted crypt was seen in the side of the footing trench, but the skeleton was not disturbed and left in situ. The crypts probably belonged to a married couple perhaps, to a pastor and his wife.  
<1> John Moore Heritage Services, 2012, An Archaeological Watching Brief at Trinity Restaurant, Chapel Street, Bicester, Oxfordshire (Unpublished document). SOX2912.  
<2> CBA South Midlands Group, South Midlands Archaeology, Vol 43 (2013) p.50 (Serial). SOX5.

<b>Site Number</b>	185
<b>Site Name</b>	Late Iron Age settlement found during evaluation at south west Bicester
<b>Type of Site</b>	Settlement
<b>NMRS Number</b>	
<b>HER Number</b>	28188
<b>Status</b>	Non-designated
<b>Easting</b>	457450
<b>Northing</b>	221660
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Evidence of late Iron Age settlement as represented by various domestic features. FIELD SYSTEM (Late Iron Age - 100 BC to 42 AD) Evidence EXCAVATED FEATURE HEARTH? (Late Iron Age - 100 BC to 42 AD) Evidence EXCAVATED FEATURE PIT (Late Iron Age - 100 BC to 42 AD) Evidence EXCAVATED FEATURE POST HOLE (Late Iron Age - 100 BC to 42 AD) Evidence EXCAVATED FEATURE RING DITCH (Late Iron Age - 100 BC to 42 AD) Evidence EXCAVATED FEATURE 1) Located in Trenches 71, 91-2, and 104 in Areas B and E. The concentration of Late Iron Age features suggest dispersed small scale settlement such as farmsteads, associated with the intervening rectilinear small scale field systems during theism period. The ditches associated with these settlements are relatively insubstantial, even when truncation is taken into account, suggesting a non-defensive function. <1> 2006, Land South West of Bicester, Oxfordshire: Report on Archaeological Evaluation (Stage 1) (Unpublished document). SOX3013.

<b>Site Number</b>	186
<b>Site Name</b>	Romano-British features and finds from Area C, Stage 1 evaluation, South-West Bicester
<b>Type of Site</b>	Faetures
<b>NMRS Number</b>	
<b>HER Number</b>	28190
<b>Status</b>	Non-designated
<b>Easting</b>	457000

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**Northing** 221610  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Several features dating to the Romano British period, which were quite different from other features observed on site. They were generally filled with dark deposits and appear to have been disturbed by later bioturbation.  
 LINEAR FEATURE (Roman - 43 AD to 409 AD)  
 Evidence EXCAVATED FEATURE  
 1> 2006, Land South West of Bicester, Oxfordshire: Report on Archaeological Evaluation (Stage 1) (Unpublished document). SOX3013.

**Site Number** 187  
**Site Name** Romano-British Quarries in Area B, Stage 1  
**Type of Site** Quarry  
**NMRS Number**  
**HER Number** 28200  
**Status** Non-designated  
**Easting** 457370  
**Northing** 221630  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Three large quarry type features were observed in 3 trenches in area B. some of them were dated to the Romano-British Period.  
 QUARRY (Roman - 43 AD to 409 AD)  
 Evidence EXCAVATED FEATURE  
 No Further Details.  
 <1> 2006, Land South West of Bicester, Oxfordshire: Report on Archaeological Evaluation (Stage 1) (Unpublished document). SOX3013.

**Site Number** 188  
**Site Name** Possible Anglo-Saxon Earthworks and features in the North and East of Area A.  
**Type of Site** Earthworks  
**NMRS Number**  
**HER Number** 28202  
**Status** Non-designated  
**Easting** 457460  
**Northing** 222170  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** In the Northern section of Area A, a small assemblage of Anglo Saxon Pottery was recovered from under a curvilinear ditch. In the East of Area A a number of saxon features were observed; a shallow ditch dated to the saxon period, a small pit with burnt material containing saxon

## Site Gazetteer



pottery, and a final trench containing 2 postholes, both containing saxon material.  
 DITCH (Early Medieval/Dark Age - 410 AD to 1065 AD)  
 Evidence EXCAVATED FEATURE  
 PIT (Early Medieval/Dark Age - 410 AD to 1065 AD)  
 Evidence EXCAVATED FEATURE  
 POST HOLE (Early Medieval/Dark Age - 410 AD to 1065 AD)  
 Evidence EXCAVATED FEATURE  
 <1> 2006, Land South West of Bicester, Oxfordshire: Report on Archaeological Evaluation (Stage 1) (Unpublished document). SOX3013.

**Site Number** 189  
**Site Name** Medieval or later quarries and track in Area A South  
**Type of Site** Quarry  
**NMRS Number**  
**HER Number** 28203  
**Status** Non-designated  
**Easting** 457370  
**Northing** 222100  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** In the western section of Area A a large quarry was observed in a single trench cut into limestone natural, a similar feature was observed in another trench in the same area.  
 <1> 2006, Land South West of Bicester, Oxfordshire: Report on Archaeological Evaluation (Stage 1) (Unpublished document). SOX3013.

**Site Number** 190  
**Site Name** Settlement/agricultural activity on outskirts of Alchester Roman town  
**Type of Site** Settlement  
**NMRS Number**  
**HER Number** 28294  
**Status** Non-designated  
**Easting** 457140  
**Northing** 221120  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** Various undated pits and post holes including two possible hearth pits, a single human cremation burial (Roman), ditches and gullies. Many of the ditches and gullies are probable modern field drains but one contained sufficient Roman pottery to suggest a Roman date.  
 OCCUPATION SITE (Undated)  
 Evidence EXCAVATED FEATURE  
 CREMATION BURIAL (Roman - 43 AD to 409 AD)  
 Evidence EXCAVATED FEATURE  
 1) In 2013 an evaluation was carried out ahead of the proposed development of a new Park



and Ride facility. Site is located on NW periphery of Alchester Roman town, and just 200m NE of Akeman Street, both of which enhance the value of this site. Various undated pits or post holes were recorded including two possible hearth pits which are consistent with outlying settlement features. A single human cremation burial which contained hobnails and tacks but no other artefacts is almost certainly of Roman date. The scarcity of burials on this site compared to the cemetery site just to the south (PRN 14292)

suggests this site lies on the edge of the burial zone. Ditches and gullies were the most common features encountered and contained very few artefacts indicating that the site lies within an area that was used predominantly as agricultural fields or enclosures since at least the Roman period. One ditch is almost certainly Roman whilst many are probably field drains of 19th- 20th century date. Further mapping of Iron Age and Roman features would help to define the extent of Alchester and add to understanding the agricultural hinterland of the settlement/town.

<1> Oxford Archaeology, 2013, Construction of Park and Ride Facility, Land to the North- West of the A41 Bicester, Oxfordshire: Archaeological Evaluation Report (Unpublished document). SOX5065.

<b>Site Number</b>	191
<b>Site Name</b>	Large Assemblage of Mesolithic Flintwork, Bronze
<b>Type of Site</b>	Assemblages
<b>NMRS Number</b>	
<b>HER Number</b>	28310
<b>Status</b>	Non-designated
<b>Easting</b>	458500
<b>Northing</b>	221990
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	A group of tree-throw holes containing a significant assemblage of late Mesolithic flintwork, a possible ditched enclosure of Bronze Age date and two early-middle Iron Age pits. DITCH (Undated) Evidence EXCAVATED FEATURE TREE THROW (Mesolithic - 10000 BC? to 4001 BC?) Evidence EXCAVATED FEATURE RECTILINEAR ENCLOSURE? (Bronze Age - 2350 BC to 701 BC) Evidence EXCAVATED FEATURE PIT (Early Iron Age to Middle Iron Age - 800 BC to 101 BC) Evidence EXCAVATED FEATURE PIT (Medieval - 1066 AD to 1539 AD) Evidence EXCAVATED FEATURE DITCH (Post Medieval to Modern - 1800 AD? to 1999 AD?) Evidence EXCAVATED FEATURE PIT (Modern - 1901 AD to 2050 AD) Evidence EXCAVATED FEATURE 1) An excavation carried out in January 2014 found no evidence for continuations of the known late Iron Age- Early Roman settlements to the south or the Saxon settlement to the North, but instead uncovered activity dating from other periods. Features consist of tree-throw holes containing a significant assemblage of late Mesolithic flintwork, a possible Bronze Age enclosure, and two early-middle Iron Age pits. All of these features are rare finds in this part of the county. The mesolithic material is typical of the ephemeral remains left by the temporary camps that characterise the hunter-gatherer lifestyle of this period. The large size of the assemblage and the fresh condition of the flint suggests that it has not moved far from where it was created and used. A range of activities, including manufacture and processing, are represented. The prevalence of debitage suggests that the final products were removed, and

that this site is part of a network of sites across the landscape. The identification of a Bronze Age enclosure is tentative as the junctions of the ditches were not uncovered therefore it cannot be confirmed that they form part of a single enclosure. The similarity in the fills of the three ditches strongly indicated an association. The dating for this feature is based on two pieces of pottery. Possible hearth debris from the middle Iron Age pits may suggest a nearby settlement, but it is more likely that the material derives from an isolated episode located away from contemporary settlement. The limited amount of Medieval features is consistent with the location of the site beyond the limit of the town in these periods. Soil monolith taken from tree hole soils down to natural revealed soil composition.

<1> Oxford Archaeology, 2014, Bicester Village Coach Park (Unpublished document). SOX5120.

<b>Site Number</b>	192
<b>Site Name</b>	Evidence from the Neolithic to Post WWII periods
<b>Type of Site</b>	Features
<b>NMRS Number</b>	
<b>HER Number</b>	28603
<b>Status</b>	Non-designated
<b>Easting</b>	458860
<b>Northing</b>	220830
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	These spanned the late Iron Age, Roman and medieval periods, indicating the varied potential of the site. The earliest significant find was a Neolithic polished flint axe fragment. DITCH (Late Iron Age - 100 BC to 42 AD) Evidence EXCAVATED FEATURE Evidence FIND PIT (Late Iron Age - 100 BC to 42 AD) Evidence EXCAVATED FEATURE Evidence FIND FIELD BOUNDARY (Roman - 43 AD to 409 AD) Evidence EXCAVATED FEATURE Evidence FIND ROAD (Roman - 43 AD to 409 AD) Evidence EXCAVATED FEATURE Main Building Material STONE 1) A variety of positive results were gained at five separate and distinct locations. These spanned the late Iron Age, Roman and medieval periods indicating the varied potential of the site. The earliest significant find was a Neolithic polished flint axe fragment. This was recovered from a subsoil deposit within the western part of the evaluation area (Trench 3) although additional artefacts or features of this date were absent. Late Iron Age activity was evidenced by a dispersed group of ditches and pits focused upon Trenches 21, 22 and 24. These remains appear to be moderately well preserved and entirely of pre Roman conquest origin. The related activity seems to be relatively sprawling with the features spread over a 100m long area around the lower slopes of Graven Hill. Further late Iron Age ditches were recorded to the north of Circular Road within Trenches 12 and 13. Comparatively dense Roman remains were encountered within the northern part of the LTA1 adjacent to the current Rodney House building. Trenches 39-42 each produced a number of linear ditches, three of which produced moderate-large assemblages of pottery dated mid-late 2nd century. The relative sterility of several other ditches and the apparent phasing represented by intersections and recuts demonstrate a degree of longevity to the activity here.

The ditch arrangements are suggestive of field boundaries or other small enclosures. It is possible that this activity or occupation may relate to a known building of some pretension beyond the LTA1 and development boundary to the WNW near to Langford Park Farm. Further remains of likely Roman origin were investigated in the form of Akeman Street. This survives in the modern landscape as a hedge boundary aligned approximately east-west through the evaluation area. Historically the route of Akeman Street was defined by a double hedge line boundary enclosing a track. This route was investigated along its eastern extent within the evaluation boundary where the hedge lines had been removed revealing a track or road surface constructed of limestone pieces set within a shallow terrace into the hill slope within Trenches 49, 58 and 59. No dating evidence was present although the absence of modern material suggests that this was sealed by silting layers prior to the military occupation and use of the site. Within the core of the LTA1 evaluation boundary Trenches 32 and 35 both produced evidence for medieval activity spanning the period 12th-14th century. It is unclear what the linear ditches represent in terms of activity or settlement although the presence of domestic pottery wares and a buckle do suggest that some contemporary occupation may be located within the vicinity. Numerous remains relating to the military camp were encountered. These were almost entirely represented by the destruction and demolition debris resulting from the clearance of the site as part of the reinstatement to pasture fields. These remains are not significant although interesting pottery assemblages often depicting the date of manufacture within the war period were present. Notable assemblages were recovered from Trench 11.

<1> Oxford Archaeology, 2016, Bicester MOD, Graven Hill, Bicester, Oxfordshire: Evaluation Report (Digital archive). SOX5709.

<b>Site Number</b>	193
<b>Site Name</b>	Cluster of Late Iron Age curvilinear and linear ditches
<b>Type of Site</b>	Ditches
<b>NMRS Number</b>	
<b>HER Number</b>	28604
<b>Status</b>	Non-designated
<b>Easting</b>	458880
<b>Northing</b>	221270
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Open plan excavation targeted on the shallow linear features of probable Iron Age date recorded within evaluation trenches from an evaluation. Revealed was an extensive arrangement of shallow curvilinear ditches and larger linear ditches dating from the late Iron Age CREMATION (Late Iron Age - 100 BC? to 42 AD?) Evidence EXCAVATED FEATURE Evidence FIND DITCH (Late Iron Age - 100 BC to 42 AD) Evidence EXCAVATED FEATURE LINEAR FEATURE (Late Iron Age - 100 BC to 42 AD) Evidence EXCAVATED FEATURE 1) Remains of Akeman Street were positively identified within Trenches 62 and 63 set across the former track and hedge boundaries. The recorded deposits were closely comparable to the results of the 2015 evaluation trenches located 280m to the east. The conformity of the road construction and materials used strongly points to these being the remains of the Roman construction, as opposed to later repairs and reuse. Likewise, the absence of modern artefacts from anything other than the ditch along the northern side of the road strongly supports the view that these deposits are of Roman, or at least pre-military camp, origin. The results of the

current evaluation confirm that the hedge line along this part of the route reflects the northern limit of the Roman road. It also suggests that a roadside flanking ditch was absent on the down slope side as also proposed by the 2015 evaluation. No disturbance associated with the removal of the southern hedge line was recorded within the limit of the trenches. It was also clear that the reinstatement works that returned the land to pasture in the mid 20th century did not impact upon the buried remains of the road. Indeed, this phase of activity was represented clearly in the trench sequence by a redeposited clay levelling layer directly overlying a former topsoil and turf line over the line of the road. This demonstrates that the track was covered over and effectively protected rather than disturbed. Based upon this evidence and the surviving topography and hedge line south of circular road, it is reasonable to conclude that Akeman Street is well preserved as it passes Graven Hill within the development boundary. Trench 64 confirmed that the remains recorded during the 2015 evaluation represent a larger Iron Age site of some complexity and distribution. This trench measured 25m by 25m and archaeological remains were recorded in all directions. The artefact assemblage also confirms that these are of late Iron Age origin, with pottery from other periods absent. Clearly these remains cannot extend beyond the field boundary to the north, as the military buildings were constructed in deep terraces that have conclusively removed all archaeological potential here and resulted in the deep levels of redeposited clay overburden with this field. This provides some limit to the potential extent of the site. Also, features were absent from

Trenches 11 and 14 from the 2015 evaluation approximately 90m to the SW. Significant features were also absent from the western end of Trench 12 so it may be possible that this is a relatively localised site. However, this uncertainty serves to demonstrate that it is not currently possible to define a detailed extent to this site on the available evidence. The type of site represented by these remains is equally difficult to interpret. The shallow segmented ditches or gullies do not appear to represent structural remains such as houses with these being too irregular and closely spaced and generally lacking the appearance of a settlement. However, this is not conclusive evidence as they do fit within the known diameter range for structures of this period and the closely-spaced features may simply reflect multiple phases. Likewise, they gullies do not make much sense as small enclosures, as it is difficult to see how such shallow features would function unless a substantial depth has been lost through historical arable activities. The larger linear ditches could easily be field or other boundaries within or close to a settlement, as suggested by the presence of larger sherds of pottery and burnt inclusions. A more accurate and informed interpretation on the function of this site will necessarily await more detailed investigation if this is appropriate.

<1> Oxford Archaeology, 2016, Bicester MOD, Graven Hill, Bicester, Oxfordshire: Archaeological Watching Brief and Evaluation Report (Digital archive). SOX5710.

<b>Site Number</b>	194
<b>Site Name</b>	Roman settlement features at Faccenda Chicken Farm
<b>Type of Site</b>	Settlement
<b>NMRS Number</b>	
<b>HER Number</b>	28651
<b>Status</b>	Non-designated
<b>Easting</b>	457291
<b>Northing</b>	220847
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Site with extensive waterlogged deposits of C1-2 date with rich plant assemblages and good environmental potential. No sign of Iron Age or Roman occupation similar to that found on the other side of the N-S road, and no clear evidence of boundary of Akeman St on the S.

DITCH (Roman - 43 AD to 409 AD)  
 Evidence EXCAVATED FEATURE  
 Evidence FIND  
 PIT (Roman - 43 AD to 409 AD)  
 Evidence EXCAVATED FEATURE  
 REVETMENT (Roman - 43 AD to 409 AD)  
 Main Building  
 Material  
 WOOD  
 FORD (Medieval - 1066 AD to 1539 AD)  
 Evidence SURFACE DEPOSIT

1) It is perhaps surprising that no evidence was found on the Faccenda Farm site of the Iron Age Activity found 300m to the W in the 1937 excavation at the junction of the Chesterton Land and the Oxford-Bicester road. It is possible that the N-S Roman road from Alchester reflected an earlier boundary to occupation; it is so, it may be "delimiting" the marshland area around the River Ray, including present-day Otmoor, as part of a wider scheme to utilize the R Ray wetlands. There is some evidence for the deliberate raising of the land-level in the late C1, which would be earlier than the C2 ditching at Faccenda, and it is unlikely that the early ditches at Alchester, which were suggested to be a boundary between settlement and agricultural land, are to be correlated with the Faccenda ditches, although their contents of bone, pot, preserved timber and waterlogged silt are similar. The Faccenda ditches almost certainly acted as boundaries. The Chesterton Lane site (to the W) shows cobbling laid over ditches following their disuse, while alluvial silting and dumping over the Faccenda ditches also suggests a peripheral status in C3. There is a shortlived occupation, as seen in the ceramic and environmental records, consistent with the Chesterton Lane site and early phases at Shakenoak, Alchester and Dorchester. It is difficult, with the limited area of occupation, to assess the nature of activity on this site; it is clear, that unless it is related to an entirely separate rural site, the features must be related to the occupation centred on Alchester. Faccenda could be seen as part of the largest extent of activity based on Alchester for land drainage. It is not possible to say how close "real" occupation (ie, houses) came to Faccenda, for the pottery and bone could have been dumped from a source some distance away; the environmental evidence for beetles associated with house timbers may be significant. It remains to discuss the Roman road system N of Alchester. There seems little doubt that the road from the S enters the south gate of Alchester, kinks slightly and leaves by the north gate to head straight N until it swings slightly to the E by the Faccenda site, following the line of the old Bicester road. There is a greater problem with Akeman street coming from the W; it was seen at Chesterton in 1937 excavations and is traced again E of Graven Hill, but the route between, especially the point of crossing the tributary of the Ray, is not clear. There are 2 possibilities: either that it continued straight to the river along the line of the present (in 1983) field boundary, or it may have taken a sharp bend to the S and turned to the E along the north edge of Alchester to cross the river at Langford Lane.<sup>sox284</sup>  
 <1> Oxford Architectural & Historical Society, Oxoniensia, Vol 49 (1984), pp 23-46 (Serial). SOX284.

<b>Site Number</b>	195
<b>Site Name</b>	Alchester Roman site
<b>Type of Site</b>	Scheduled Monument
<b>NMRS Number</b>	1006365
<b>HER Number</b>	
<b>Status</b>	Scheduled Monument
<b>Easting</b>	457543
<b>Northing</b>	220621
<b>Parish</b>	Bicester

**Council** Cherwell District Council

**Description** This record has been generated from an "old county number" (OCN) scheduling record. As these are some of our oldest designation records they do not have all the information held electronically that our modernised records contain. Therefore, the original date of scheduling is not available electronically. The date of scheduling may be noted in our paper records, please contact us for further information.

<b>Site Number</b>	196
<b>Site Name</b>	Bicester Conservation Area
<b>Type of Site</b>	Conservation Area
<b>NMRS Number</b>	
<b>HER Number</b>	
<b>Status</b>	Conservation Area
<b>Easting</b>	458277
<b>Northing</b>	222286
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	5.1.1 This section provides a brief history of the development of Bicester. A more detailed account is given in The Victoria County History: A History of Oxfordshire, Vol VI (Lobel, 1959). Other key sources can be found in the Bibliography. 5.1.2 There has been a settlement at or near Bicester since Roman times. In the middle of the first century AD the Romans established and fortified the town of Alchester at the intersection of Akeman Street (Cirencester to St Albans) and a road from Towcester to Dorchester, a location approximately 1.5 kilometres south of the present town. The 26 acre site was very low lying, necessitating extensive raising of levels and drainage works. When the Romans left in the 5th century their drainage system collapsed and the site reverted to marsh land. There have not only been several finds of Romano British pottery around the site but also a tombstone, coin hoard and gate-posts which have provided important details and dates for the site. 5.1.3 There is debate about the origin of the name of the town. The Domesday Book, 1086, records the town as Bernecestre which means 'the fort of the warriors' or 'of Beorna' who was believed to be an Anglo-Saxon Warlord. It is possible that the settlement was a frontier garrison town for the west Saxons against the Mercians. There is no evidence of a defended site, although it was believed locally that earthworks may have been found adjacent to the River Bure at Crockwell (located at the north end of Sheep Street). Others cite the Saxon for granary (bern) and the Latin for town (ceaster) to reflect the market place. Other variations of the name include Burincester, Burencester, Birini-Castrum, Birincestre, Burincastre. As late as 1757 it was known variously as Burchester, Burcester or Bissiter and in 1793 as Burcester or Bicester, the present spelling only becoming standard in the nineteenth century.

<b>Site Number</b>	197
<b>Site Name</b>	Bicester Cottage Hospital, Kings End
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1077

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<b>Status</b>	Event
<b>Easting</b>	458020
<b>Northing</b>	222290
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	03/09/2003 - 04/09/2003, between (2003) Arch intervention/excavation/trial trench Archaeological evaluation at Bicester Cottage Hospital site off Piggy Lane. Truncation from car parking area but possible Roman ditch observed in two trenches. Unpublished document: Thames Valley Archaeological Services. 2003. Bicester Cottage Hospital, Kings End, Bicester - Evaluation report.

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<b>Site Number</b>	198
<b>Site Name</b>	61 Priory Road, Bicester - Evaluation Report
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1085
<b>Status</b>	Event
<b>Easting</b>	458500
<b>Northing</b>	222060
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/04/2003 - 30/04/2003, at some time (2003) Arch intervention/excavation/trial trench Evaluation revealed E-W late Saxon ditch, possible further ditch of comparable date and a few residual prehistoric worked flints Unpublished document: Oxford Archaeology. 2003. 61 Priory Road, Bicester - Evaluation Report

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<b>Site Number</b>	199
<b>Site Name</b>	Rear of Nos 3,5, 9-13 Causeway
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX11
<b>Status</b>	Event
<b>Easting</b>	458430
<b>Northing</b>	222310
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Arch intervention/excavation/trial trench Evaluation recovered sherds of Roman fine ware possibly indicative of a fairly high status Roman settlement nearby as well as confirming marshy nature of this area due to rubbish deposits. Earliest reclamation dates to C14-15, with more done in C17-18. No significant arch

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remains, but important land use information.  
Unpublished document: John Moore Heritage Services. 2000. An Archaeological Evaluation on land to the rear of Nos 3,5, and 9-13 Causeway, Bicester, Oxfordshire.

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<b>Site Number</b>	200
<b>Site Name</b>	29/29a Market Square, Bicester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1102
<b>Status</b>	Event
<b>Easting</b>	458000
<b>Northing</b>	222000
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/02/1998 - 28/02/1998, at some time (1998) Arch intervention/excavation/test pit Archive interpretation/documentary research Field survey/photographic Programme of Building Recording and Investigation. Unpublished document: Phoenix Consulting. 1998. Report on Programme of Building Recording and Investigation: 29/29a Market Square, Bicester, Oxfordshire.

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<b>Site Number</b>	201
<b>Site Name</b>	Anglo Saxon and Medieval Settlement at Chapel Street
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1122
<b>Status</b>	Event
<b>Easting</b>	458500
<b>Northing</b>	222230
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Arch intervention/excavation/area excavation Excavation revealed earliest occupation in Bicester associated with minster; excavated prior to redevelopment of site as residential accommodation and office use. Unpublished document: Trust for Wessex Archaeology. 2002. Anglo-Saxon and Medieval Settlement at Chapel Street, Bicester, Excavations 1999-2000. (1) (2) Serial: Oxford Architectural & Historical Society. Oxoniensia. vol LXVII (2002), pp 141-178

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## Site Gazetteer



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<b>Site Number</b>	202
<b>Site Name</b>	An Archaeological Watching Brief at Vine Cottages, Causeway, Bicester, Oxfordshire
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1521
<b>Status</b>	Event
<b>Easting</b>	458390
<b>Northing</b>	222297
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	10/09/2004 - 21/06/2005, at some time (2004-2005) Prior to construction of new housing and renovation of Vine Cottages, condition of WB was imposed; numerous features have helped define E edge of King's Arms settlement. Soil layers indicating cultivation or ground raising were also determined. Serial: CBA South Midlands Group. South Midlands Archaeology. No.36: 2006. p39 Unpublished document: John Moore Heritage Services. 2005. An Archaeological Watching Brief at Vine Cottages, Causeway, Bicester, Oxfordshire.

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<b>Site Number</b>	203
<b>Site Name</b>	Site visit to area N of Church Street
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1614
<b>Status</b>	Event
<b>Easting</b>	458330
<b>Northing</b>	222365
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Limited recording of Saxon cemetery done by S Weaver; report in DRF. Index: Additional Information in Detailed Record File. see under PRN number

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<b>Site Number</b>	204
<b>Site Name</b>	Evaluation at Priory Lane (phase 1)
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1743
<b>Status</b>	Event
<b>Easting</b>	458468
<b>Northing</b>	221974

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<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	19/12/2005 - 21/12/2005 Evaluation (of 8 trenches) ahead of new residential construction; only 3 were productive. 2 C11-12 ditches and 2 undated ditches were excavated; these are thought to represent boundary features defining burgage plots. Also found were single prehistoric flake and Roman pottery. Potential for archaeology remains at the northern end of the site are high. Area in S prone to flooding. Unpublished document: Thames Valley Archaeological Services. 2006. Land of Priory Road, Bicester, Oxfordshire 2005 (phase 1): An Archaeological Evaluation.

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<b>Site Number</b>	205
<b>Site Name</b>	Excavations in the Extramural Settlement of Roman Alchester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1788
<b>Status</b>	Event
<b>Easting</b>	457098
<b>Northing</b>	220957
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/06/1991 - 30/01/1992 Arch intervention/excavation Major excavation ahead of road construction. Two sites uncovered Neolithic and Bronze Age flintwork, middle Iron Age settlement, extensive Roman settlement and late Roman burials. Monograph: Oxford Archaeological Unit. 2002. Excavations in the Extramural Settlement of Roman Alchester. Oxford Archaeology monograph 1.

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<b>Site Number</b>	206
<b>Site Name</b>	Excavations in the extramural Settlement of Roman Alchester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1811
<b>Status</b>	Event
<b>Easting</b>	457358
<b>Northing</b>	221300
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Excavation of area 16 x 15.5m, initially stripped by 360 excavator. Poor ground conditions made recording difficult, particularly the rising of groundwater levels. Monograph: Oxford Archaeological Unit. 2002. Excavations in the Extramural Settlement of Roman Alchester. Oxford Archaeology monograph 1.

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## Site Gazetteer



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<b>Site Number</b>	207
<b>Site Name</b>	Land South West of Bicester, Oxfordshire: Interpretation of Aerial Photographs For Archaeology
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1815
<b>Status</b>	Event
<b>Easting</b>	456999
<b>Northing</b>	222015
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Remote sensing survey/aerial photography Interpretation of Aerial Photographs to provide information on the location and nature of archaeological features within and adjacent to the study area. Slight modification provided to existing SMR sites. Unpublished document: Air Photo Services Ltd. 2005. Land southwest of Bicester, Oxfordshire: Interpretation of Aerial Photographs for Archaeology. Project No. 0418.

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<b>Site Number</b>	208
<b>Site Name</b>	Land to Western End of Wesley Lane, Bicester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1831
<b>Status</b>	Event
<b>Easting</b>	458308
<b>Northing</b>	222623
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	06/06/2005 Arch intervention/watching brief Watching brief carried out on 11m of foundation trench. Excavated to a depth of 1.2m. Uncovered two C13 - 14 century walls and an earlier medieval ditch as well as a small pit and some post medieval garden features. Serial: CBA South Midlands Group. South Midlands Archaeology. No.36, 2006. p39 Unpublished document: John Moore Heritage Services. 2005. Interim Report on Archaeological Watching Brief at Land to the Western End of Wesley Lane, Bicester.

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<b>Site Number</b>	209
<b>Site Name</b>	An Archaeological Excavation at 17, 17A & 19 London Road Bicester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	

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<b>HER Number</b>	EOX1891
<b>Status</b>	Event
<b>Easting</b>	458723
<b>Northing</b>	222230
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	17/05/2005 - 02/09/2006, at some time (2005-2006) Arch intervention/excavation Arch intervention/watching brief Excavation of a 15m by 8m area centred on an earlier evaluation trench and a watching brief conducted on various service runs, footings and a 1.1m by 1.8m test pit ahead of redevelopment uncovered a C14th house and well and associated market garden features as well as earlier agricultural ditches, pits and gullies. Unpublished document: John Moore Heritage Services. 2006. An Archaeological Excavation at 17, 17A & 19 London Road, Bicester, Oxfordshire.

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<b>Site Number</b>	210
<b>Site Name</b>	Roman and Saxon Features at 61 Priory Road
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1961
<b>Status</b>	Event
<b>Easting</b>	458510
<b>Northing</b>	222060
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/01/2006 - 28/02/2006 In advance of housing development on c 550sqm plot. Excavation targeted on a previous evaluation. Uncovered a roman ditch and three Saxon ditches with a series of undated post holes. Unpublished document: Thames Valley Archaeological Services. 2006. Roman and Saxon Features at 61 Priory Road, Bicester, Oxfordshire: Draft Publication Report.

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<b>Site Number</b>	211
<b>Site Name</b>	Old Place Yard, Bicester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX1993
<b>Status</b>	Event
<b>Easting</b>	458377

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## Site Gazetteer



**Northing** 222195  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 06/12/2006 - 08/12/2006  
Ground penetrating Radar survey carried out for Oxford Archaeology by Arrow Geophysics on Old Place Yard and St Edburg's House. The survey, carried out on two survey grids, one centred on St Edburg's House and the other on the council offices, revealed possible aspects of the Priory buildings  
Unpublished document: Oxford Archaeology. 2006. Old Place Yard, Bicester: Geophysical Survey

**Site Number** 212  
**Site Name** An Archaeological Evaluation For Town Centre Development  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX2011  
**Status** Event  
**Easting** 458371  
**Northing** 222519  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 21/03/2006 - 08/05/2006  
Four trenches, totalling 50m in length were excavated ahead of development. Modern truncation was identified to the north of the site whilst the south revealed a very thick layer of made ground (1.5m+). An undated wall was recorded below it and a paleochannel was recorded running N/S across the site.  
Unpublished document: John Moore Heritage Services. 2006. An Archaeological Evaluation For Town Centre Development, Bicester, Oxfordshire.

**Site Number** 213  
**Site Name** Archaeological Desk Based Assessment at Town Centre Development, Bicester  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX2014  
**Status** Event  
**Easting** 458371  
**Northing** 222519  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 01/12/2005 - 31/12/2005  
A DBA written for and contained within the EA for the Bicester Town Centre development. Established moderate potential for Roman, Saxon and Medieval archaeology in the eastern and southern parts of the site.  
Unpublished document: CGMS Consulting. 2005. Archaeological Desk Based Assessment at

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Town  
Centre Development, Bicester.

**Site Number** 214  
**Site Name** Land off London Road  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX2051  
**Status** Event  
**Easting** 458630  
**Northing** 221620  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 16/04/2007 - 24/04/2007  
24 trenches were excavated on the site ahead of development, a number of which flooded very quickly. Recorded two paleochannels and three phases of alluviation separating two phases of archaeological deposits. A large number of undated pits, ditches and postholes were recorded, many probably contemporary with nearby Roman remains at Oxford Road.  
Unpublished document: John Moore Heritage Services. 2007. An Archaeological Investigation of Land Off London Road, Bicester, Oxfordshire.  
(1)  
(2) Serial: CBA South Midlands Group. South Midlands Archaeology. Issue 38:2008, p49

**Site Number** 215  
**Site Name** An Archaeological Watching Brief at 4 Launton Road  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX2058  
**Status** Event  
**Easting** 458680  
**Northing** 222280  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 05/05/2007 - 08/05/2007  
A watching brief was carried out during construction of a new house and renovation of another. No archaeological deposits were recorded, despite extensive remains recovered from archaeological work in the immediate area.  
Unpublished document: John Moore Heritage Services. 2007. An Archaeological Watching Brief at 4 Launton Road, Bicester, Oxon.  
(1)  
(2) Serial: CBA South Midlands Group. South Midlands Archaeology. Issue 38:2008, p49

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<b>Site Number</b>	216
<b>Site Name</b>	London Road, Bicester, Oxfordshire
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2151
<b>Status</b>	Event
<b>Easting</b>	458630
<b>Northing</b>	221620
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	07/02/2007 - 28/02/2007 Desk based assessment carried out on a 3.84 ha parcel of land north of London Road. Concludes that the site has some archaeological potential as it lies immediately E of known LIA/early RB farmstead. Recommends consultation with CAS be carried out as a trenched evaluation may be required. Unpublished document: Archaeological & Planning Solutions. 2007. London Road, Bicester, Oxfordshire: Archaeological Desk Based Assessment

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<b>Site Number</b>	217
<b>Site Name</b>	Manor Farm, Kings End
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2178
<b>Status</b>	Event
<b>Easting</b>	458250
<b>Northing</b>	222420
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	26/06/2007 - 17/08/2007 Originally, watching brief had been requested, but was not implemented, so this evaluation was carried out to mitigate the error by assessing areas of possible impact of the development and record any additional deposits exposed during the remaining ground disturbing activity. Consisted of 4 trenches dug alongside the walls of new buildings and a watching brief on service runs following the construction of 8 new houses. Late Saxon or Early Medieval pit and a late medieval or early post medieval quarry pit were recorded. Unpublished document: Thames Valley Archaeological Services. 2007. Manor Farm, Kings End, Bicester, Oxfordshire: Archaeological Recording Action.

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<b>Site Number</b>	218
<b>Site Name</b>	Evaluation at No 8-16 London Road
<b>Type of Site</b>	Event
<b>NMRS Number</b>	

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<b>HER Number</b>	EOX2183
<b>Status</b>	Event
<b>Easting</b>	458650
<b>Northing</b>	222250
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/05/1978 - 30/05/1978 Following demolition of Nos 8-16 London Rd, trial trench carried out to record stratigraphy. Two of 3 C18-19 cess pits found to extend beneath present pavement. Serial: CBA South Midlands Group. South Midlands Archaeology. vol 9 (1979), p 125

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<b>Site Number</b>	219
<b>Site Name</b>	Pre PPG 16 evaluation on the Causeway
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2184
<b>Status</b>	Event
<b>Easting</b>	458440
<b>Northing</b>	222350
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/03/1980 - 31/03/1980 Single hand-dug trench of 17.5m dug; north end was cut by number of stone-lined drains in PM deposits; southern end revealed edge of foundation of Causeway. Excavation showed that floodplain of R Bure was only reclaimed for building in early Post Med period. Excavation hoped to show relationship between settlement nuclei of Bicester and produce stratified medieval pottery sequence for town. Serial: CBA South Midlands Group. South Midlands Archaeology. vol 11 (1981), p 115

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<b>Site Number</b>	220
<b>Site Name</b>	Bicester Office Park
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2194
<b>Status</b>	Event
<b>Easting</b>	457910
<b>Northing</b>	221631
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	On site of proposed Bicester Office Park, evaluation consisted of 31 trenches over areas of archaeological potential, which had been identified by geophysical survey. Major finding was

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quantity of Mesolithic flint spread that might indicate important in situ Mesolithic deposits; also found was possible evidence of late prehistoric and Roman settlement and several phases of agricultural land management  
Unpublished document: Network Archaeology. 2007. Bicester Office Park: Archaeological Trench Evaluation.

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<b>Site Number</b>	221
<b>Site Name</b>	South West Bicester (Stage 1)
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2256
<b>Status</b>	Event
<b>Easting</b>	457100
<b>Northing</b>	222000
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	21/07/2006 - 20/09/2006 Comprised 134 trenches, divided into 6 areas, targeted on cropmarks and/or geophysical anomalies. 41 contained archaeological features/deposits, including Early Bronze Age barrow, Late Iron Age settlement, Romano-British settlement, possible Anglo Saxon features, and Medieval trackways and quarries. Serial: CBA South Midlands Group. South Midlands Archaeology. vol 37 (2007), p 64 Unpublished document: 2006. Land South West of Bicester, Oxfordshire: Report on Archaeological Evaluation (Stage 1).

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<b>Site Number</b>	222
<b>Site Name</b>	An Archaeological Watching Brief at Land Adj to 1 Priory Terrace, Priory Lane
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2354
<b>Status</b>	Event
<b>Easting</b>	458443
<b>Northing</b>	222156
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	29/05/2008 - 20/11/2008 A watching brief was conducted during groundworks for a new dwelling; site area c 350 sq m. No archaeological deposits were recorded, and no structural remains of the Priory were uncovered. Single medieval sherd found Unpublished document: Thames Valley Archaeological Services. 2008. Land Adj to 1 Priory Terrace, Priory Lane, Bicester: An Archaeological Watching Brief. (1)

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(2) Serial: CBA South Midlands Group. South Midlands Archaeology. Vol 39 (2009) p.60

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<b>Site Number</b>	223
<b>Site Name</b>	Land at King's Arms
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2526
<b>Status</b>	Event
<b>Easting</b>	458550
<b>Northing</b>	222250
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/11/1999 - 01/01/2000, between (1999-2000) Excavation revealed important evidence for Saxon settlement possibly spanning the C5th-11th but not clear if continuous over that period. Three sunken-featured buildings containing significant quantities of Early/Middle Saxon (late C5th-8th) pottery were found but few other features could be assigned to this early phase. Five timber halls of posthole, beam slot and post-in-trench construction assigned a later Saxon (C9/10th-11th) date. Medieval features comprised a series of C12-13th shallow ditches which appear to represent field and/or enclosure boundaries, possibly associated with properties along the London Road frontage. Unpublished document: Wessex Archaeology. 2000. King's Arms, Bicester, Oxfordshire: Assessment Report on the results of the archaeological excavation including proposals for post-excavation analysis and publication.

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<b>Site Number</b>	224
<b>Site Name</b>	The Kings Arms Hotel Complex, 4-6 London Road
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX263
<b>Status</b>	Event
<b>Easting</b>	458600
<b>Northing</b>	222400
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/05/1998 - 30/06/1998, between (1998) Building survey carried out on Grade II listed structures proposed for re-development. Inspection of the buildings confirmed the 17th century dating of No.4 and the 18th century dating of No.6 outlined in the listings. The associated buildings have few chronologically diagnostic features and represent many phases of development on the site. At No.4 the cellar, room 14 and the southern end of barn 39 are likely to be among the more ancient structures on the site. The building group facing Barclays car park appears to be largely 18th

## Site Gazetteer



and 19th century in origin, though possibly incorporating earlier material.  
Unpublished document: Phoenix Consulting. 1998. Report on a Programme of Building Recording and Investigation: The King's Arms Hotel Complex, 4/6 London Road, Bicester, Oxfordshire.

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<b>Site Number</b>	225
<b>Site Name</b>	Land South West of Bicester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2660
<b>Status</b>	Event
<b>Easting</b>	457334
<b>Northing</b>	222115
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	09/01/2006 - 28/01/2006, between (2006) Detailed magnetic survey (gradiometer) was used with readings taken at 0.25m centres along traverses 1m apart, providing 3600 sampling points in a full 30m x 30m grid. Area covers approx 55.8ha. Unpublished document: Stratascan. 2006. Land South West of Bicester, Oxfordshire: Geophysical Survey.

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<b>Site Number</b>	226
<b>Site Name</b>	Land South West of Bicester (Stage 2)
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2661
<b>Status</b>	Event
<b>Easting</b>	457334
<b>Northing</b>	222142
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	17/09/2007 - 11/10/2007, between (2007) Performed in advance of development of site for housing. The Stage 2 results do not significantly alter the results of the first stage: of the 76 trenches opened, only 5 contained archaeological features and deposits mainly of Roman-British date. Second stage targetted cropmarks, geophys anomalies, and areas of unknown potential. Topographic survey done for earthworks in N part of site. Unpublished document: Wessex Archaeology. 2007. Land South West of Bicester, Oxfordshire: Report on Stage 2 Archaeological Evaluation.

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<b>Site Number</b>	227
<b>Site Name</b>	Land South West of Bicester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2662
<b>Status</b>	Event
<b>Easting</b>	457336
<b>Northing</b>	222083
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/08/2008 - 01/04/2009, at some time (2008-2009) Archaeological assessment of multi-staged programme of work at this important site in SW Bicester. Results to be published in Oxo. Unpublished document: Wessex Archaeology. 2009. Land South-West of Bicester, Oxfordshire: Postexcavation Assessment Report and Updated Project Design for Analysis and Publication.

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<b>Site Number</b>	228
<b>Site Name</b>	Wendlebury Road
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2895
<b>Status</b>	Event
<b>Easting</b>	457406
<b>Northing</b>	221180
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	13/07/2010 Evaluation trench failed to find any evidence of Roman road surfaces, flanking ditches or other evidence of Roman activity. Below the modern road surface limestone layers overlay a subsoil layer. Lowest level contained a Post Medieval horseshoe. Unpublished document: Thames Valley Archaeological Services. 2010. Wendlebury Road, Bicester, Oxfordshire: Archaeological Evaluation.

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<b>Site Number</b>	229
<b>Site Name</b>	New Parish Rooms, Church of the Immaculate Conception, The Causeway
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX2922
<b>Status</b>	Event
<b>Easting</b>	458362

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**Northing** 222371  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 26/01/2010 - 28/01/2010, between (2010)  
The evaluation revealed that archaeologically relevant levels are still present and have not been truncated. The presence of Saxon pottery, animal bone and the proximity of the cemetery indicate that the site retains some archaeological potential.  
Unpublished document: Thames Valley Archaeological Services. 2010. New Parish Rooms, Church of the Immaculate Conception, The Causeway: Archaeological Evaluation.

**Site Number** 230  
**Site Name** LINEAR A421 Wendlebury-Bicester Dualling  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX2953  
**Status** Event  
**Easting** 457145  
**Northing** 220986  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 01/03/1991 - 31/10/1991, between (1991)  
Analysis of the 1991 excavations produced evidence for Neolithic activity, a Bronze Age burial, Middle Iron Age settlement, extensive activity throughout the Roman period and Anglo Saxon burials.  
Unpublished document: Oxford Archaeological Unit. 1991. A421 Wendlebury-Bicester Dualling: Post Excavation Assessment and Updated Project Design.

**Site Number** 231  
**Site Name** E Site, MOD, Bicester (Area A)  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX2986  
**Status** Event  
**Easting** 458210  
**Northing** 221020  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 16/08/2010 - 20/08/2010, between (2010)  
Over area of approx 13 ha, 3 separate areas (A-C) were surveyed. Area A (Fields 1-4) yielded a number of positive linear anomalies considered to have archaeological potential within Field 1, close to to the western boundary of the site. The anomalies lie within 250m of Alchester Roman town and may indicate an extension of features into the extreme western part of the survey

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area. The remaining fields within Area A do not appear to contain other anomalies of archaeological potential, although some ridge and furrow noted in Field 2.  
Unpublished document: Archaeological Surveys Ltd. 2010. E Site MOD Bicester, Oxfordshire: Magnetometer Survey Report.

**Site Number** 232  
**Site Name** E Site, MOD, Bicester (Area B)  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX2987  
**Status** Event  
**Easting** 458600  
**Northing** 220890  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 16/08/2010 - 20/08/2010, between (2010)  
In Field 5, three parallel negative linear anomalies were located on the eastern side of the survey area; these may relate to widespread magnetic debris or ground make-up and disturbance. The area contains very strong magnetic responses indicating ferrous material is present, as well as irregular undulations indicative of relatively recent ground disturbance, dumping or ground make-up, although there is some evidence for extant ridge and furrow earthworks in the southern part of the area.  
Unpublished document: Archaeological Surveys Ltd. 2010. E Site MOD Bicester, Oxfordshire: Magnetometer Survey Report.

**Site Number** 233  
**Site Name** E Site, MOD, Bicester (Area C)  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX2988  
**Status** Event  
**Easting** 458980  
**Northing** 221250  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 16/08/2010 - 20/08/2010, between (2010)  
In Field 6, three positive linear anomalies located in the southern part of the survey area may indicate ditch-like features, or be associated with former cultivation. The area also contains land drains and buried services as well as magnetic disturbance from surrounding metal fencing and goal posts.  
Unpublished document: Archaeological Surveys Ltd. 2010. E Site MOD Bicester, Oxfordshire: Magnetometer Survey Report.

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<b>Site Number</b>	234
<b>Site Name</b>	Langford Park Farm, London Road
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX3042
<b>Status</b>	Event
<b>Easting</b>	458425
<b>Northing</b>	221329
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	11/10/2010 - 12/10/2010, between (2010) Several archaeological deposits were revealed from locations across the proposal site (of ca 1.3 ha). Two periods are represented by these deposits: early Roman and late Saxon. Material recovered from 5 of 7 trenches. Unpublished document: Thames Valley Archaeological Services. 2010. Langford Park Farm, London Road: Archaeological Evaluation.

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<b>Site Number</b>	235
<b>Site Name</b>	LINEAR Whitelands Farm
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX3087
<b>Status</b>	Event
<b>Easting</b>	458009
<b>Northing</b>	221606
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	07/09/2010 - 19/11/2010 Watching brief done during topsoil stripping and excavation of pipe trenches associated with the construction of a new sewer pipeline. No datable evidence was recovered but white loam and brown silt-sand may tie in with deposits recovered during the earlier evaluation in which white deposits sealed RB features which themselves disturbed Mesolithic activity. Unpublished document: John Moore Heritage Services. 2010. An Archaeological Watching Brief at Whitelands Farm, Bicester, Oxfordshire. (1) (2) Serial: CBA South Midlands Group. South Midlands Archaeology. SMA 41 (2011) 39

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<b>Site Number</b>	236
<b>Site Name</b>	New Parish Rooms, Church of the Immaculate Conception
<b>Type of Site</b>	Event

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<b>NMRS Number</b>	
<b>HER Number</b>	EOX3141
<b>Status</b>	Event
<b>Easting</b>	458360
<b>Northing</b>	222360
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Work followed on from evaluation which found arch'l features on the site which would be damaged or destroyed by development; work designed to preserve the features by record. Eastern extension of the known cemetery was found during the digging of building footings. Site area: 1 ha. Unpublished document: Thames Valley Archaeological Services. 2011. New Parish Rooms, Church of the Immaculate Conception, The Causeway, Bicester, Oxfordshire: Archaeological Watching Brief. (1) (2) Serial: CBA South Midlands Group. South Midlands Archaeology. SMA 41 (2011) 58

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<b>Site Number</b>	237
<b>Site Name</b>	Wendlebury Road, Bicester (Phase 2)
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX3142
<b>Status</b>	Event
<b>Easting</b>	457277
<b>Northing</b>	220929
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	08/11/2010 Work commissioned in advance of widening of Rd for a roundabout and link road off the A41 to serve a new residential development. 300m stretch of road to be affected with carriageway surface and foundation to be broken and a new road surface constructed. Original phase had one trench dug but nothing found Unpublished document: Thames Valley Archaeological Services. 2010. Wendlebury Road, Bicester, Oxfordshire (Phase 2): Archaeological Evaluation. (1) (2) Serial: CBA South Midlands Group. South Midlands Archaeology. SMA 41 (2011) 58

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<b>Site Number</b>	238
<b>Site Name</b>	Bryan House, Chapel Street
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX3150

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<b>Status</b>	Event
<b>Easting</b>	458432
<b>Northing</b>	222219
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/03/2011 - 31/03/2011 Evaluation in 6 trenches revealed evidence for walls associated with the Augustinian Priory church and footings of a probable late medieval or early post-medieval cottage. Unpublished document: John Moore Heritage Services. 2011. Bryan House, Chapel Street: Archaeological Evaluation. (1) (2) Serial: CBA South Midlands Group. South Midlands Archaeology. vol 42, (2012), p41

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<b>Site Number</b>	239
<b>Site Name</b>	Manor Farm, King's End
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX3196
<b>Status</b>	Event
<b>Easting</b>	458238
<b>Northing</b>	222409
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/01/2005 - 31/12/2005, at some time (2005) The two buildings observed during the site visit, on stylistic grounds can be dated to the 19th century. The historical maps indicate that buildings were present on the site by 1881 when the Ordnance Survey was conducted; there is no cartographic evidence to place the construction of these buildings much before this date. Both buildings have undergone extensive alteration and modernisation reflecting their change in use over the years most evident in the extension of Barn 2 for domestic facilities. The original building forms are still present in both cases but this is not necessarily the structure which would have originally been erected on the site. The two structures are now derelict farm buildings which are of no great architectural merit. Unpublished document: Thames Valley Archaeological Services. 2005. Manor Farm, King's End: Building Survey.

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<b>Site Number</b>	240
<b>Site Name</b>	Land at Old Place Yard
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX3203
<b>Status</b>	Event
<b>Easting</b>	458348

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<b>Northing</b>	222055
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	03/10/2011 - 14/10/2011 Three site visits were made during watching brief, which consisted of topsoil stripping followed by further reduction to finished levels in car park area. Surface of natural geology was not encountered, as only 30cm soil removed. Soil appeared undisturbed, and was probably made up when bungalows built. No archaeological features were present on the site; two animal bones recovered may indicate the area was used for pasture outside the monastic precinct. Unpublished document: John Moore Heritage Services. 2011. An Archaeological Watching Brief on Land at Old Place Yard, Bicester, Oxfordshire. (1) (2) Serial: CBA South Midlands Group. South Midlands Archaeology. Vol 43 (2013) p.51

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<b>Site Number</b>	241
<b>Site Name</b>	4 Church Street
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX3245
<b>Status</b>	Event
<b>Easting</b>	458336
<b>Northing</b>	222332
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	27/09/2011 - 23/11/2011 Watching brief carried out during construction of new conservatory to the rear of the property. Excavation of the soakaway revealed made-ground that contained residual sherds of late medieval/post-medieval pottery with an underlying linear feature that might be a walled garden. Excavation of the footings trench revealed deposits of worked, dumped limestone that might be linked to the wall. No evidence of Saxon cemetery found less than 10m to the N. Unpublished document: Archaeological Services and Consultancy Ltd. 2011. Watching Brief: 4 Church Street, Bicester, Oxfordshire. (1) (2) Serial: CBA South Midlands Group. South Midlands Archaeology. vol 42 (2012), p 38

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<b>Site Number</b>	242
<b>Site Name</b>	Whitelands Farm, Bicester Leisure Park
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX33
<b>Status</b>	Event

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**Easting** 457700  
**Northing** 222100  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 17/12/1997 - 06/01/1998, between (1997-1998)  
Magnetic survey indicated occupation areas to N and W of service area.  
Unpublished document: Stratascan. 1997. A Report for University Of Birmingham Field Archaeology  
Unit on a Geophysical Survey Carried out at Whitelands Farm, Bicester Leisure Park.

**Site Number** 243  
**Site Name** Trinity Restaurant, Chapel Street  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX3319  
**Status** Event  
**Easting** 458487  
**Northing** 222280  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 02/06/2012 - 08/06/2012  
Watching brief conducted during ground reduction for a new single storey extension to the rear of Trinity Restaurant. Seven site visits made. Works included hand excavation of the footing trenches to a usual depth of c. .90m from present ground level. No evidence of Saxon occupation which was thought to extend into the site from the adjacent site discovered in 1999.  
Unpublished document: John Moore Heritage Services. 2012. An Archaeological Watching Brief at Trinity Restaurant, Chapel Street, Bicester, Oxfordshire.

**Site Number** 244  
**Site Name** St Edburg's Church  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX3333  
**Status** Event  
**Easting** 458300  
**Northing** 222270  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 23/04/2012 - 28/06/2012  
Faculty gained from Archdeaconry to install underfloor heating ducting and lay a new paving slab floor in the choir vestry within the church. A new drainage trench was to be dug to

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improve the existing drainage up against the vestry wall. Due to the possibility of buried archaeological deposits being disturbed by these works, a condition was attached to allow a WB. The works have identified human burial practice and interment within the graveyard and under the floor of the vestry. The top of one crypt was observed in the churchyard for a soakaway, and a second crypt within the choir vestry.  
Unpublished document: Thames Valley Archaeological Services. 2012. St Edburg's Church, Bicester:  
Archaeological Watching Brief.  
(1)  
(2) Serial: CBA South Midlands Group. South Midlands Archaeology. Vol 43 (2013) p.75

**Site Number** 245  
**Site Name** The Former Bryan House  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX3389  
**Status** Event  
**Easting** 458430  
**Northing** 222210  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 13/06/2011 - 19/08/2011  
Three open area excavations in areas not destroyed by deep wall footings of the former Bryan House (area C) and on two areas fronting onto Chapel Street (areas A & B). This was part of planning application to demolish the existing Bryan House and to develop 23 units of affordable housing. The excavation in areas of proposed impact followed on from the evaluation. A watching brief followed on during ground works.  
Unpublished document: John Moore Heritage Services. 2012. Archaeological Investigations beneath the Former Bryan House, Chapel Street, Bicester, Oxfordshire; plus two additional areas and Watching Brief.

**Site Number** 246  
**Site Name** 7-8 Market Square, Bicester  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX34  
**Status** Event  
**Easting** 458650  
**Northing** 222450  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 01/02/1992 - 28/02/1992, at some time (1992)

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Evaluation revealed very late Post Medieval deposits and features of non-structural nature, including early C20 property boundary. Post Medieval cobbled surface also found. No finds of archaeological significance.

NEGATIVE

Unpublished document: Oxford Archaeological Unit. 1992. Archaeological Field Evaluation of 7-8 Market Square, Bicester

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<b>Site Number</b>	247
<b>Site Name</b>	Powerline Pole Replacement, Arncott to Bicester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX3425
<b>Status</b>	Event
<b>Easting</b>	457970
<b>Northing</b>	221610
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	06/09/2011 WB during the excavation of a trench for a replacement electricity pole S of Bicester and N of Roman Alchester. A layer of moern ploughsoil sealing an earlier, undated, worked soil horizon was observed. No archaeological finds or features were seen during the excavation. Unpublished document: Oxford Archaeology. 2012. Powerline Pole Replacement Arncott to Bicester, Oxfordshire: Archaeological Watching Brief Report. Digital copy only

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<b>Site Number</b>	248
<b>Site Name</b>	St Edburg's Church
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX3525
<b>Status</b>	Event
<b>Easting</b>	458310
<b>Northing</b>	222270
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	27/08/2013 - 30/08/2013 Faculty gained to allow works to commence at locations where possible archaeological remains could exist, covering route of new pipe trench in northern graveyard and test pit locations in church interior. Graves, articulated skeletons and 3 crypts were found along the pipe route. One test pit located a small patch of surviving mortared bedding for previous floor and another pit located a probable C18 interment. Unpublished document: Thames Valley Archaeological Services. 2013. St Edburg's Church,

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Bicester,  
Oxfordshire: Archaeological Watching Brief.

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<b>Site Number</b>	249
<b>Site Name</b>	Bicester Library Extension
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX38
<b>Status</b>	Event
<b>Easting</b>	458300
<b>Northing</b>	222200
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	06/11/1995 - 10/11/1995, between (1995) No in situ structural remains found, but evaluation revealed single burial. Ground around library has been levelled to create platform, but not to S and E, implying that sensitive archaeological deposits may lie within 30cm of present ground level. Unpublished document: Oxford Archaeological Unit. 1995. Bicester Library Extension: Archaeological Watching Brief Report. (1) (2) Serial: CBA South Midlands Group. South Midlands Archaeology. Vol 26 (1996) p.55

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<b>Site Number</b>	250
<b>Site Name</b>	St Mary's School and Caesars Lodge
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX39
<b>Status</b>	Event
<b>Easting</b>	458040
<b>Northing</b>	222370
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	27/01/1998 - 05/03/1998, occasionally (1998) Site has been levelled in recent past, probably during construction of St Mary's School. Excavation of foundation trenches did not produce artefacts earlier than C19 and no archaeological features were observed. Unpublished document: Thames Valley Archaeological Services. 1998. Archaeological Watching Brief at St Mary's School, Bicester.

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<b>Site Number</b>	251
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<b>Site Name</b>	Arch Evaluation at Oxford Road
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX43
<b>Status</b>	Event
<b>Easting</b>	458200
<b>Northing</b>	221800
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/11/1993 - 30/11/1993, at some time (1993) Eastern one-third of site revealed unrecorded extensive Roman settlement, dating mainly to C1-C2. Survive under alluvium 0.5 to 1.2m below ground surface. Interpreted as ?farmstead with possible earlier Iron Age enclosure. Unpublished document: Birmingham University Field Archaeology Unit. 1993. An Archaeological Evaluation at Oxford Road, Bicester, Oxfordshire.

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<b>Site Number</b>	252
<b>Site Name</b>	Sewage treatment works
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX438
<b>Status</b>	Event
<b>Easting</b>	457760
<b>Northing</b>	220990
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	16/12/1996 - 18/12/1996 Evaluation unearthed no Romano-British evidence which was expected. Ridge and furrow marks, perhaps a residue of Medieval cultivation. Unpublished document: Foundations Archaeology. 1996. Bicester Sewage Treatment Works, Bicester, Oxfordshire.

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<b>Site Number</b>	253
<b>Site Name</b>	Oxford Road, Bicester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX44
<b>Status</b>	Event
<b>Easting</b>	458400
<b>Northing</b>	221700

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<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/05/1994 - 30/06/1994, at some time (1994) Extensive survival of previously unrecorded late Iron Age and Roman settlement, surviving beneath alluvium. Two phases of activity. Low status rural site typical of Upper Thames Region Unpublished document: Birmingham University Field Archaeology Unit. 1995. An Archaeological Excavation at Oxford Road, Bicester, Oxfordshire. (1) (2) Serial: Oxford Architectural & Historical Society. Oxoniensia. vol 61 (1996), pp 65-108

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<b>Site Number</b>	254
<b>Site Name</b>	Chapel Street to Rear of No 1 Causeway
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX45
<b>Status</b>	Event
<b>Easting</b>	458450
<b>Northing</b>	222300
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	29/11/1999 Evaluation proved that 86% of area has been truncated by stream once much wider, and by part of cottage that stood in southern part of site. Anglo Saxon ditch found in NE part of site, under Medieval horticultural deposits. Unpublished document: John Moore Heritage Services. 1999. An Archaeological Evaluation at Chapel Street, to the rear of No 1 Causeway, Bicester, Oxfordshire

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<b>Site Number</b>	255
<b>Site Name</b>	Land between Causeway and Bryon House (Vine Cottis)
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX46
<b>Status</b>	Event
<b>Easting</b>	458430
<b>Northing</b>	222250
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/06/1999 - 30/06/1999, at some time (1999) Evaluation proved presence of low-lying area between Medieval and earlier settlements; area was marshy and flood-prone, which explains need for Causeway to span wet area and link 2 settlement areas. Only Post Medieval material found. Unpublished document: John Moore Heritage Services. 1999. An Archaeological Evaluation at Land

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## Site Gazetteer



between the Causeway and Bryon House, known as Vine Cottages, Bicester, Oxfordshire.

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<b>Site Number</b>	256
<b>Site Name</b>	Happy Eater Forte Development
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX49
<b>Status</b>	Event
<b>Easting</b>	457630
<b>Northing</b>	221900
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/03/1994 - 30/03/1994, at some time (1994) No features encountered; limited Roman finds confirm nearby presence of Roman occupation Unpublished document: Oxford Archaeological Unit. 1994. Watching brief at 'Happy Eater' Forte development, Bicester. (1) (2) Serial: CBA South Midlands Group. South Midlands Archaeology. Vol 25 (1995) p.49

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<b>Site Number</b>	257
<b>Site Name</b>	Bicester Retail Village (Phase 2B)
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX50
<b>Status</b>	Event
<b>Easting</b>	458000
<b>Northing</b>	221900
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	02/01/2000 - 31/01/2000, at some time (2000) Subsoil significantly reduced prior to present development; no archaeological features found. Unpublished document: Birmingham University Field Archaeology Unit. 2000. Archaeological Watching Brief Bicester Retail Village, Bicester.

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<b>Site Number</b>	258
<b>Site Name</b>	17 Causeway and Vine Cottages
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX506

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<b>Status</b>	Event
<b>Easting</b>	458410
<b>Northing</b>	222280
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	13/07/1999 - 14/07/1999 Planning permission was granted to redevelop this site, due to its listed status (grade II) a condition was attached to the permission requiring that a photographic record be made of the building prior to demolition Unpublished document: John Moore Heritage Services. 1999. Building investigation at 17 Causeway and Vine Cottages, Bicester.

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<b>Site Number</b>	259
<b>Site Name</b>	The Old Vicarage
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX508
<b>Status</b>	Event
<b>Easting</b>	458250
<b>Northing</b>	222310
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/11/1989 Various building periods and architectural features recorded by John Steane. The house is of C15 date but has extensions and alterations of C16th, C18th, C19th and C20th date. Unpublished document: English Heritage (RCHME). 1989. Historic Building Report on the Old Vicarage, Bicester.

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<b>Site Number</b>	260
<b>Site Name</b>	Courthouse and County Police Buildings
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX509
<b>Status</b>	Event
<b>Easting</b>	458310
<b>Northing</b>	222320
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/06/1998 A record of the buildings before conversion work and a brief account of the use of the buildings. Unpublished document: Alison Maguire. 1998. Building survey of the Courthouse and County Police

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buildings, Bicester.

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<b>Site Number</b>	261
<b>Site Name</b>	Old Police Station and Courthouse
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX51
<b>Status</b>	Event
<b>Easting</b>	458320
<b>Northing</b>	222340
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	30/06/1998 During alterations and extensions to above buildings, watching brief undertaken; no archaeology found. Cambered structure of Police Station floors recorded Unpublished document: AOC Archaeology Group. 1998. Archaeological Watching Brief at Old Police Station, Bicester.

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<b>Site Number</b>	262
<b>Site Name</b>	The Old Stables
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX510
<b>Status</b>	Event
<b>Easting</b>	458430
<b>Northing</b>	222090
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/05/1995 Prior to their conversion to housing, the Old Stables in Priory lane were investigated and photographed by OAU as a condition of listed building consent under the terms of PPG 15/16 Unpublished document: Oxford Archaeological Unit. 1995. Architectural records of The Old Stables, Priory Lane, Bicester.

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<b>Site Number</b>	263
<b>Site Name</b>	Land behind King's Arms Hotel
<b>Type of Site</b>	Event
<b>NMRS Number</b>	

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<b>HER Number</b>	EOX52
<b>Status</b>	Event
<b>Easting</b>	458550
<b>Northing</b>	222250
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	09/12/1997 - 12/12/1997, between (1997) Evaluation revealed ?Saxon structure and series of gullies and ditches on W; C17-18 deposits on E. Development appears to represent area on southern fringe of Market End, but with earlier Saxon remains. Unpublished document: Wessex Archaeology. 1998. Assessment and Evaluation of land behind the King's Arms Hotel, Bicester.

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<b>Site Number</b>	264
<b>Site Name</b>	Land at Proctor's Yard
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX53
<b>Status</b>	Event
<b>Easting</b>	458370
<b>Northing</b>	222270
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/07/1999 - 31/07/1999, at some time (1999) Evaluation revealed single phase of archaeological activity, mainly late C12, survives in E and C18 garden soil to W. Deposits characterised by pits, gully and postholes. Documentary evidence for C12 priory suggests possibility that ecclesiastical deposits may exist Unpublished document: Thames Valley Archaeological Services. 1999. Evaluation of land at Proctor's Yard, Bicester.

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<b>Site Number</b>	265
<b>Site Name</b>	Land at Old Place Yard
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX5454
<b>Status</b>	Event
<b>Easting</b>	458400
<b>Northing</b>	222200
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council

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**Description** 05/08/2013 - 16/08/2013, between (2013)  
Work undertaken to inform plans for future development of this site. Fourteen trenches and two test pits were distributed evenly over the 0.57ha site and were excavated by both machine and hand. This evaluation has confirmed the archaeological potential implied by documentary evidence and the results of work in nearby areas. The surviving archaeology is of a quality and extent which will allow a greater understanding of the Priory and perhaps its previous land use.  
Unpublished document: Thames Valley Archaeological Services. 2013. Land at Old Place Yard, Bicester, Oxfordshire: Archaeological Evaluation.

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**Site Number** 266  
**Site Name** Construction of Park and Ride Facility  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX5457  
**Status** Event  
**Easting** 457140  
**Northing** 221120  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 09/08/2013 - 20/08/2013, between (2013)  
An evaluation carried out on the c. 2.04ha site of a proposed Park and Ride site to the south of Bicester, on the NW periphery of the extra-mural settlement of Alchester Roman Town. Seventeen trenches were excavated and archaeology potentially associated with Alchester was recorded. The site has high potential for the discovery of further human burials.  
Unpublished document: Oxford Archaeology. 2013. Construction of Park and Ride Facility, Land to the North- West of the A41 Bicester, Oxfordshire: Archaeological Evaluation Report.

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**Site Number** 267  
**Site Name** Land Adjacent to Substation on Pingle Field  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX5459  
**Status** Event  
**Easting** 458390  
**Northing** 221930  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 30/09/2013 - 18/11/2013, between (2013)  
Watching brief during the excavation of a new cable diversion trench and a strip, map and sample excavation on the footprints of a new switch house (c. 37.5m x 5m) and attenuation pond (c. 10m x 8m). No archaeological

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features or finds.  
Unpublished document: Oxford Archaeology. 2013. Land Adjacent to Substation on Pingle Field, Bicester, Oxford: Strip Map and Sample and Watching Brief Report.

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**Site Number** 268  
**Site Name** Bicester Village Coach Park  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX5519  
**Status** Event  
**Easting** 458460  
**Northing** 221970  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 01/01/2014 - 31/01/2014, between (2014)  
Excavation on an irregular parcel of land measuring c 0.85ha, excavation area measured 0.2ha and located in the north-eastern part of the development. The western half of the development site was not excavated to the paucity of archaeological features in the adjacent stripped areas. The site had previously been evaluated by TVAS (EOX1743 ),during which Mesolithic material, and Bronze Age and early-middle Iron Age features were uncovered. Absence of Saxon material suggests that that this site lies S of the Saxon minster. Some modern disturbance was encountered on site.  
Unpublished document: Oxford Archaeology. 2014. Bicester Village Coach Park.

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**Site Number** 269  
**Site Name** Bicester Community Hospital  
**Type of Site** Event  
**NMRS Number**  
**HER Number** EOX5572  
**Status** Event  
**Easting** 458030  
**Northing** 222290  
**Parish** Bicester  
**Council** Cherwell District Council  
**Description** 01/06/2013 - 28/02/2014, occasionally (2013-2014)  
Watching brief conducted during the construction of the new Bicester Community Hospital. Proposed development site of 7500m sq. The watching brief was undertaken in four distinct phases: excavation of a service trench, excavation for the construction of a car park and receptor pit for storm water, excavating the main body of the new building and during later ground reduction. The watching brief confirmed some of the findings of previous evaluation EOX1077; observations showed that two thirds of the development site were disturbed or truncated down to the natural. It is unclear why this was so, but differences between the stratigraphy recorded in

the 2003 evaluation and in the 2013 excavations may suggest that this area of the site had since been truncated, with the hardstanding now recorded as being directly above the natural. The absence of the natural layer 5 within the area of the service trenching suggests that the western part of the site has been subject either to deep cultivation or to modern disturbance which may have been disturbed or destroyed such evidence.  
 Unpublished document: Oxford Archaeology. 2014. Bicester Community Hospital, Kings End, Bicester, Oxfordshire; Archaeological Watching Brief.

<b>Site Number</b>	270
<b>Site Name</b>	An Archaeological Watching Brief at St Edburg's House
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX5604
<b>Status</b>	Event
<b>Easting</b>	458410
<b>Northing</b>	222200
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	19/05/2014 - 27/05/2014, between (2014) A watching brief carried out during demolition works at former St. Edburg's House Care Home, covering approximately 0.25ha. A concrete slab 0.3-0.4m thick reinforced with steel covered the entire footprint of the former building. Concrete foundations were 0.5m deep and 0.4m wide in the south, central and north parts of the monitored area, with the foundations in the east extension 0.6 and 0.7m wide. The biggest impact of the demolition works was in the area of the lift shaft, which covered approximately 52m sq. in the west and central part of the monitored area and which had concrete foundations up to 1.7m deep. The watching brief successfully proved that some remains of the Priory church, including church walls and floor surfaces, were still preserved within the monitored area under the former building. Unpublished document: John Moore Heritage Services. 2014. An Archaeological Watching Brief at St. Edburg's House: Old Place Yard, Bicester, Oxfordshire.

<b>Site Number</b>	271
<b>Site Name</b>	Chapel St Evaluation
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX571
<b>Status</b>	Event
<b>Easting</b>	458450
<b>Northing</b>	222300
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council

**Description** 20/11/2000 - 23/11/2000  
 Excavation revealed Roman-British pottery, tile and hypocaust which indicate a relatively high status Roman site in the vicinity. Ditch dated firmly to late C11. Early -mid Anglo Saxon sherds found. Cottage footing found in evaluation date to mid C18.  
 Unpublished document: John Moore Heritage Services. 2001. An Archaeological Excavation at Chapel Street, to the rear of No 1 Causeway, Bicester, Oxfordshire: Archive Report.

<b>Site Number</b>	272
<b>Site Name</b>	Former Centurion Public House
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX5923
<b>Status</b>	Event
<b>Easting</b>	457470
<b>Northing</b>	222670
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council

**Description** 14/05/2015 - 18/06/2015  
 Planning permission granted for demolition of Centurion Public House and erection of 9 two storey houses. Watching brief consisted of monitoring of service trench for drainage around the footprints of the new development. No archaeological features or finds were identified in the trench.  
 Digital archive: John Moore Heritage Services. 2015. Archaeological Watching Brief at the former Centurion PH, Leach Road, Bicester, Oxfordshire

<b>Site Number</b>	273
<b>Site Name</b>	St Edburg's Church
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX6031
<b>Status</b>	Event
<b>Easting</b>	458310
<b>Northing</b>	222270
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council

**Description** 30/04/2014 - 30/09/2015, at some time (2014-15)  
 The work was commissioned on behalf of the Incumbent and Church Wardens. A faculty has been gained from the Archdeaconry of Oxfordshire to allow works to continue on updating and improving the drainage which first started with the french drain on the exterior of the choir vestry. First three test pits were required for viewing the foundations of the tower by structural engineers. The following year the digging of a soakaway was undertaken, digging out the existing drainage channel and a french drain

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laid; these were the final works after the scaffolding for the south aisle parapet had been completed, and were carried out in accordance with a specification following a brief previously prepared for other works at the church by the Diocesan Archaeological Adviser. Disarticulated bones were recovered from all the test pits, and were reinterred at the church. A single stone of large proportions with a faced side was revealed from one test pit; this stone may have been part of the church tower foundations.

Digital archive: Thames Valley Archaeological Services. 2016. St Edburg's Church, Church Street, Bicester, Oxfordshire: Archaeological Watching Brief.

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<b>Site Number</b>	274
<b>Site Name</b>	Bicester Community Hospital
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX6089
<b>Status</b>	Event
<b>Easting</b>	457900
<b>Northing</b>	222300
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/04/2016 - 30/04/2016, at some time (2016) Cherwell District granted planning permission for demolition of existing community hospital and redevelopment of site to provide a new community hospital and 14 residential units. An archaeological watching brief at the former site of Bicester Community Hospital (NGR SP 579 223) was required as part of a condition. The northern extent of the site was heavily disturbed by the remains of the former hospital and no archaeological features were observed. Within the southern extent of the site two undated ditches and two undated pits were observed. The features identified within this watching brief possibly represent a continuation of a field system extending up to the Roman road running into Bicester or be associated activity on the edge of such a system. Alternatively they could relate to later activity in the area. Digital archive: John Moore Heritage Services. 2016. Archaeological Watching Brief at Bicester Community Hospital, Kings End, Bicester, Oxfordshire OX26 6DU.

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<b>Site Number</b>	275
<b>Site Name</b>	Langford Park Farm
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX6090
<b>Status</b>	Event
<b>Easting</b>	458450
<b>Northing</b>	221340
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/01/2014 - 31/12/2014, at some time (2014) This document outlines the potential for further analysis arising from the excavation of c. 1.30

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ha of land known as Langford Park Farm. Research aims which might be addressed by the analysis are identified. The aim is to target post-excavation resources where the information gain will be greatest, in line with current local, regional and national research priorities. A programme for analysis and publication is proposed. The report consists of a phase by phase summary, the nature and character of recovered material and statement of potential, and the research questions that the material will address.  
Digital archive: Thames Valley Archaeological Services. 2016. Langford Park Farm, London Road, Bicester, Oxfordshire: Archaeological Post-Excavation Assessment.

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<b>Site Number</b>	276
<b>Site Name</b>	Phase 1, Bicester Gateway
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX6091
<b>Status</b>	Event
<b>Easting</b>	457320
<b>Northing</b>	221140
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	08/09/2016, absolute (2016) A fluxgate gradiometer survey, done by Pre-Construct Archaeology for Cotswold Archaeology, of Phase 1, Bicester Gateway has identified traces of archaeological remains in the south-eastern part of the site in the form of short ditches and pits also including a possible site of industrial activity. These probably date from at least the prehistoric period, situated in close proximity to known Iron Age and Romano-British settlement remains. Elsewhere, the majority of the site appears to be relatively clear of geophysical indicators of further remains, with a possible isolated curvilinear ditch recorded in the northern region. The survey recorded limited traces of likely ridge and furrow in the mid and southern region Digital archive: Pre-Construct Archaeology. 2016. Archaeological Geophysical Survey: Phase 1, Bicester Gateway, Oxfordshire.

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<b>Site Number</b>	277
<b>Site Name</b>	Bicester MOD
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX6092
<b>Status</b>	Event
<b>Easting</b>	458860
<b>Northing</b>	220860
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	07/09/2015 - 20/11/2015, between (2015) Oxford Archaeology was commissioned by Graven Hill Village Development Company Ltd to undertake the evaluation of the Land Transfer Area 1 (LTA1) within the greater development

boundary at Graven Hill. This comprised the excavation of 55 evaluation trenches measuring 50m by 4m. The scope and arrangement of the trenches was agreed between the client's consultant archaeologist, Waterman Infrastructure and Environment Ltd, and the Planning Archaeologist for the Cherwell District. In the event an additional 2 trenches measuring 30m by 2m were added to the scope. A variety of positive results were gained at five separate and distinct locations. These spanned the late Iron Age, Roman and medieval periods indicating the varied potential of the site. The earliest significant find was a Neolithic polished flint axe fragment. This was recovered from a subsoil deposit within the western part of the evaluation area although additional artefacts or features of this date were absent. Late Iron Age activity was evidenced by a dispersed group of ditches and pits focused upon Trenches 21, 22 and 24. Comparatively dense Roman remains were encountered within the northern part of the LTA1 adjacent to the current Rodney House building. Further remains of likely Roman origin were investigated in the form of Akeman Street. This survives in the modern landscape as a hedge boundary aligned approximately east-west through the evaluation area. Within the core of the LTA1 evaluation boundary Trenches 32 and 35 both produced evidence for medieval activity spanning the period 12th-14th century. Numerous remains relating to the military camp were encountered. These were almost entirely represented by the destruction and demolition debris resulting from the clearance of the site as part of the reinstatement to pasture fields. Digital archive: Oxford Archaeology. 2016. Bicester MOD, Graven Hill, Bicester, Oxfordshire: Evaluation Report.

<b>Site Number</b>	278
<b>Site Name</b>	Bicester MOD
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX6093
<b>Status</b>	Event
<b>Easting</b>	458880
<b>Northing</b>	221270
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	06/06/2016 - 17/06/2016, between (2016) Oxford Archaeology was commissioned by Graven Hill Village Development Company Ltd to undertake a watching brief and evaluation on separate occasions in 2016 at Graven Hill. The watching brief was undertaken during the removal of the ground slab following the demolition of Rodney House during February. Subsequently, five additional targeted evaluation trenches were excavated in June to supplement the results of a primary evaluation stage undertaken by OA in 2015. No archaeological horizons were revealed during the removal of the ground slab with the demolition disturbance being limited to the underlying hardcore rubble layer. From the evaluation phase, Trenches 60 and 61 produced inconclusive evidence for the extent of the archaeological features previously recorded in Trenches 32 and 35 during the 2015 investigation. The evaluation confirmed the presence of remains of Roman Akeman Street within Trenches 62 and 63. Trench 64 was targeted on the shallow linear features of probable Iron Age date recorded within Trenches 12 and 13 from the 2015 evaluation. Excavation of an area measuring 25m by 25m revealed a more extensive arrangement of shallow curvilinear ditches and larger linear ditches dating from the late Iron Age. Digital archive: Oxford Archaeology. 2016. Bicester MOD, Graven Hill, Bicester, Oxfordshire: Archaeological Watching Brief and Evaluation Report.

<b>Site Number</b>	279
<b>Site Name</b>	Faccenda Chicken Farm
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX6138
<b>Status</b>	Event
<b>Easting</b>	457290
<b>Northing</b>	220840
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/07/1983 - 31/08/1983, between (1983) Limited excavation was carried out 1/4 mile N of Alchester; pits and ditches of late C1 to late C2 indicated extensive drainage work, abandoned by early C3 and covered in alluvium. Serial: Oxford Architectural & Historical Society. Oxoniensia. Vol ?? (1984), pp 23-46

<b>Site Number</b>	280
<b>Site Name</b>	Land at Proctor's Yard
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX721
<b>Status</b>	Event
<b>Easting</b>	458370
<b>Northing</b>	222270
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/01/2000 - 01/02/2000 Area covering half of proposed development (for residential use) uncovered. Features were mainly late A-S, Medieval & Post Med. 1 ditch may mark E boundary of precinct of minster Church, backfilled before foundation of Austin priory in later C12. Unpublished document: Thames Valley Archaeological Services. 2001. Excavation of archaeological deposits on land at Proctor's Yard, Bicester.

<b>Site Number</b>	281
<b>Site Name</b>	Crown Walk Shopping Centre, Bicester: Arch'l DBA
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX952
<b>Status</b>	Event

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<b>Easting</b>	458400
<b>Northing</b>	222500
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/10/2001 - 31/10/2001 To assess potential or land between Bure Place and Manorsfield Rd, which currently has Crown Walk arcade and car parks. Lack of Archaeological records from site; uncertain about extent of Med town. Suggestion that archaeological remains may exist under car parks. Unpublished document: Thames Valley Archaeological Services. 2001. Crown Walk Shopping Centre, Bicester

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<b>Site Number</b>	282
<b>Site Name</b>	Land adjoining Middleton Stoney Rd and Oxford Rd, Bicester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX954
<b>Status</b>	Event
<b>Easting</b>	457800
<b>Northing</b>	222200
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	02/04/2002 - 12/04/2002 2.5% sample; 13 trenches; 3 smaller open areas; significant archeology in 6 of 13 trenches, with 2 trenches having LIA and early Roman features suggestive of double ditching for farmstead and cobbling to consolidate wet ground near the brook, perhaps at crossing point. 4 other trenches comprised small number of pits, gullies and ditches. Absence of features to N suggests waterlogging. Unpublished document: Oxford Archaeology. 2002. Evaluation of land adjoining Middleton Stoney Rd and Oxford Rd, Bicester. (1) (2) Serial: CBA South Midlands Group. South Midlands Archaeology. Vol 33 (2003) p.74

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<b>Site Number</b>	283
<b>Site Name</b>	Proposed Community Hospital, Bicester
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX956
<b>Status</b>	Event
<b>Easting</b>	457700
<b>Northing</b>	222100
<b>Parish</b>	Bicester

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## Site Gazetteer



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<b>Council</b>	Cherwell District Council
<b>Description</b>	15/04/2002 - 19/04/2002, between (2002) 18 trenches excavated; arch'l concentration in centre of site, with number of structures identified including one with square postholes. Unpublished document: Oxford Archaeology. 2002. Evaluation of proposed Community Hospital, Bicester. (1) (2) Serial: CBA South Midlands Group. South Midlands Archaeology. Vol 33 (2003) p.74

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<b>Site Number</b>	284
<b>Site Name</b>	Arch'l Watching Brief at F-Station, Chesterton
<b>Type of Site</b>	Event
<b>NMRS Number</b>	
<b>HER Number</b>	EOX958
<b>Status</b>	Event
<b>Easting</b>	457130
<b>Northing</b>	220830
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	01/05/2002 - 03/07/2002, at some time (2002) WB occurred during demolition of pumping station and enlargement of existing facilities. Siting of new deeper chambers over existing ones minimised area of ground disturbance. No soils pre-dating the construction of original pumping station were visible; no archaeology found Unpublished document: John Moore Heritage Services. 2002. Watching brief at F-Station, Chesterton.

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<b>Site Number</b>	285
<b>Site Name</b>	Ridge and Furrow
<b>Type of Site</b>	
<b>NMRS Number</b>	
<b>HER Number</b>	
<b>Status</b>	Non-designated
<b>Easting</b>	457960
<b>Northing</b>	221534
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Ridge and furrow identified from Aerial Photographic source (RAF/CPE/UK/1897) in eastern part of field. These are orientated in both a north-south and east-west orientation

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<b>Site Number</b>	286
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## Site Gazetteer



<b>Site Name</b>	Circular cropmark from aerial photography
<b>Type of Site</b>	
<b>NMRS Number</b>	
<b>HER Number</b>	
<b>Status</b>	Non-designated
<b>Easting</b>	458012
<b>Northing</b>	221587
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Circular anomaly cropmark identified from Aerial Photographic source (RAF/CPE/UK/1897-3113) , east of a house (which is no longer present-May 2017) on a field boundary.

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<b>Site Number</b>	287
<b>Site Name</b>	Linear cropmarks from aerial photography
<b>Type of Site</b>	
<b>NMRS Number</b>	
<b>HER Number</b>	
<b>Status</b>	Non-designated
<b>Easting</b>	457824
<b>Northing</b>	221571
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Two thin linears running E-W and a thinner one to the north are visible in the eastern portion of the Site (RAF/540/1400: 141 & 142). A rectangular anomaly is visible on a northern field boundary which is no longer present. These likely relate to agriculture; perhaps field boundaries and enclosures.

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<b>Site Number</b>	601
<b>Site Name</b>	Bronze Age Round Barrows
<b>Type of Site</b>	Barrows
<b>NMRS Number</b>	
<b>HER Number</b>	5633
<b>Status</b>	Non-designated
<b>Easting</b>	457480
<b>Northing</b>	221780
<b>Parish</b>	Bicester
<b>Council</b>	Cherwell District Council
<b>Description</b>	Identified by R Featherstone (APU at RCHME). Visible on geophysical survey results and part excavated during an evaluation; the larger barrow produced Early Bronze Age collared urn pottery sherds from the ditch fills.

## Site Gazetteer



LINEAR FEATURE (Unknown date)  
Evidence CROPMARK  
ROUND BARROW (Bronze Age - 2350 BC? to 701 BC?)  
Evidence CROPMARK  
Evidence EXCAVATED FEATURE  
Evidence SUB SURFACE DEPOSIT  
ROUND BARROW (Bronze Age - 2350 BC to 701 BC)  
Evidence CROPMARK  
Evidence EXCAVATED FEATURE  
Evidence SUB SURFACE DEPOSIT  
3) Additional photographic coverage was identified within the NMR collection during the Cherwell District cropmark survey. Most recent photo is 24-Jun-2003 (co-ordinates were mislabelled), SP5818/27 - NMR23137/24 (H. Hamilton 23-02-2007).  
5) See letter and Xerox in DRF.  
6) Aerial photo's show two uninterrupted ring ditches; these monuments are wholly eroded and flattened by ploughing. Other features in same area show possible ditched features and eroded broad ridge and furrow. Some fragmentary linear features lie adjacent to the ring ditches and are likely to be associated with either the Roman town or the activity immediately to the north (PRN 11214).  
7) Located in Trenches 77-79 were two round barrows determined by aerial photos and geophysical evidence, as well as evaluation. Ring ditches do not intercut, so it is not known which was constructed first. The larger ditch was the westernmost, and had a 32m diameter, with an almost 4m wide and 1.5m deep ditch. This ditch was open for some time after construction, allowing a charcoal-rich deposit to form. The lowest deposits were likely to have been waterlogged, with a silty and damp deposit of natural origin above the charcoal one. Within this deposit were Early Bronze Age sherds of collared Urn tradition. An internal ditch of approx. 17m diameter was also found which was much shallower than the outer one. The smaller, eastern ditch was only 0.58m deep and 1.45m wide with a 21.3m diameter. The ditch was partially backfilled, probably deliberately. No evidence of burials in either barrow, and the platforms have been ploughed out.  
<1> Oxfordshire County Council, 1961, Fairey Aerial Surveys, 6125/12.111 (Photograph). SOX264.  
<2> Pickering Aerial Photos, Examined by D Benson, 16.12.74. No reference given (Photograph). SOX418.  
<3> English Heritage, NMR Aerial Photographs, 4634/04, SP 5721/5. Laser copy held in SMR (Photograph). SOX294.  
<4> Slide Cabinet, 1 of site taken in 1989. See accompanying note from M Farley in DRF (Photograph). SOX303.  
<5> Local Informant as main provider of information, xerox of print by M Farley, 23-08-89 (Verbal communication). SOX277.  
<6> Air Photo Services Ltd, 2005, Land southwest of Bicester, Oxfordshire: Interpretation of Aerial Photographs for Archaeology (Unpublished document). SOX1735.  
<7> 2006, Land South West of Bicester, Oxfordshire: Report on Archaeological Evaluation (Stage 1) (Unpublished document). SOX3013.



# ES Volume II: Technical Appendices

## Appendix 10.2 Setting Assessment Methodology

# BURIED HERITAGE (ARCHAEOLOGY) & BUILT HERITAGE Appendices

## Appendix 10.2

### Methodology for assessing indirect effects upon setting

**10.1** This sub-section outlines the detailed methodology used in assessing potential effects upon the setting of heritage assets. The methodology presented here sets out criteria for assessing sensitivity to changes to setting (Relative Sensitivity), magnitude of change and level of effect.

#### Assessing Sensitivity of Assets to Changes to their Setting

**10.2** Whilst determining the relative cultural value of a heritage asset is essential for establishing its importance, it is widely recognised<sup>1</sup> that the importance of an asset is not the same as its sensitivity to changes to its setting. Thus in determining effects upon the setting of assets by a proposed development, both importance and sensitivity to changes to setting need to be considered.

**10.3** Setting is a key issue in the case of some, but by no means all assets. A nationally important asset does not necessarily have high sensitivity to changes to its setting (relative sensitivity), this may be because its value lies in its other characteristics and its setting is not a factor which contributes demonstrably to its value. An asset's sensitivity refers to its capacity to retain cultural heritage value in the face of changes to its setting. The ability of the setting to contribute to an understanding, appreciation and experience of the asset and its value also has a bearing on the sensitivity of that asset to changes to its setting. Assets with high sensitivity will be vulnerable to changes that affect their settings, and even slight changes may reduce their value or the ability of setting to contribute to the understanding, appreciation and experience of the asset. Less sensitive assets will be able to accommodate greater changes to their settings without significant reduction in their value, and in spite of such changes the relationship between the asset and its setting will still be legible.

**10.4** The criteria for establishing an asset's relative sensitivity are outlined in Table 1 below.

**Table 1 Criteria for Establishing Relative Sensitivity**

Sensitivity	Criteria
High	<p>An asset whose setting contributes significantly to an observer's understanding, appreciation and experience of it and its value should be thought of as having High Sensitivity to changes to its setting. This is particularly relevant for assets whose settings, or elements thereof, contribute directly to their value (e.g. form part of their Evidential and Aesthetic Value<sup>2</sup>). For example an asset which retains an overtly intended or authentic relationship with its setting and the surrounding landscape. These may in particular be assets such as ritual monuments that have constructed sightlines to and/or from them, or structures intended to be visually dominant within a wide landscape area e.g. castles, tower houses, prominent forts etc.</p> <p>An asset, the current understanding, appreciation and experience of which, relies heavily on its modern aesthetic setting. In particular an asset whose setting is an important factor in the retention of its cultural value.</p>

Medium	<p>An asset whose setting contributes moderately to an observer's understanding, appreciation and experience of it and its value should be thought of as having Medium Sensitivity to changes to its setting. This could be an asset for which setting makes a contribution to value, but whereby its value is derived mainly from its physical evidential values. This could for example include assets which had an overtly intended authentic relationship with their setting and the surrounding landscape but where that relationship (and therefore the ability of the assets' surroundings to contribute to an understanding, appreciation and experience of them and their value) has been moderately compromised either by previous modern intrusion in their setting or the landscape, or where the asset itself is in such a state of disrepair that the relationship with setting cannot be fully determined.</p> <p>An asset, the current understanding, appreciation and experience of which, relies partially on its modern aesthetic setting regardless of whether or not this was intended by the original constructors or authentic users of the asset. An asset whose setting is a contributing factor to the retention of its cultural value.</p>
Low	<p>An asset whose setting makes some contribution to an observer's understanding, appreciation and experience of it and its value should generally be thought of as having Low Sensitivity to changes to its setting. This may be an asset whose value is mainly derived from its physical evidential values and whereby changes to its setting will not materially diminish our understanding, appreciation and experience of it or its value. This could for example include assets which had an overtly intended authentic relationship with their setting and the surrounding landscape, but where that relationship (and therefore the ability of the assets' surroundings to contribute to an understanding, appreciation and experience of them and their) has been significantly compromised either by previous modern intrusion to its setting or landscape, or where the asset itself is in such a state of disrepair that the relationship with setting cannot be determined.</p>
Marginal	<p>An asset whose setting makes minimal contribution to an observer's understanding, appreciation and experience of it and its value should generally be thought of as having Marginal Sensitivity to changes to its setting. This may include assets for which the authentic relationship with their surrounding has been lost, possibly having been compromised by previous modern intrusion, but who still retain cultural value in their physical evidential value and possibly wider historical and communal values.</p>

**10.5** The determination of an asset's sensitivity is first and foremost reliant upon the determination of its setting. The criteria set out in 4 above are intended as a guide. Assessments of individual assets are informed by knowledge of the asset itself, of the asset type if applicable, and by site visits to establish the current setting of the assets. This allows for the use of professional judgement and each asset is assessed on an individual basis. It should be noted that individual assets may fall into a number of the sensitivity categories presented above, e.g. a country house may have a high sensitivity to alterations within its own landscaped park or garden, but its sensitivity to changes in the wider setting may be less.

#### Assessing Magnitude of Change

**10.6** Determining the magnitude of change caused by the Proposed Development requires an identification of the change to the setting of any given asset, and in particular changes to those elements of the setting that inform its cultural value. Table 2 below outlines the main factors affecting magnitude of change:

**Table 2 Factors Affecting Magnitude of Change**

site Details	Importance of detail for assessing magnitude of change
1) Proximity to centre of development	Increasing distance of an asset from the Proposed Development will, in most cases, diminish the effects on its setting.

<sup>1</sup> Lambrick (2008). Setting Standards: A Review prepared on behalf of the IFA.

<sup>2</sup> Historic England (2008). Conservation Principles, 28-29.

# BURIED HERITAGE (ARCHAEOLOGY) & BUILT HERITAGE

2) Visibility of development (based visualisations where appropriate)	The proportion of the development that is likely to be intervisible with the asset will usually directly affect the magnitude of change on its setting.
3) Complexity of landscape	The more visually complex a landscape is, the less prominent the new development may appear within it. This is because where a landscape is visually complex the eye can be distracted by other features and will not focus exclusively on the new development. Visual complexity describes the extent to which a landscape varies visually and the extent to which there are various land types, land uses, and built features producing variety in the landscape.
4) Visual obstructions	This refers to the existence of features (e.g. tree belts, forestry, landscaping or built features) that could partially or wholly obscure the development from view.

**10.7** It is acknowledged that Table 10.5 above primarily deals with visual factors affecting setting. Whilst the importance of visual elements of settings, e.g. views, intervisibility, prominence etc, are clear, it is also acknowledged that there are other, non-visual factors which could potentially result in setting effects. Such factors could be other sensory factors, e.g. noise or smell, or could be associative. In coming to a conclusion about magnitude of change upon setting, this assessment makes reference to traffic, noise, air quality, and landscape and visual assessments, undertaken for this ES, as appropriate.

**10.8** Once the above has been considered, the prediction of magnitude of change in setting is based upon the criteria set out below in Table 3. In applying these criteria, particular consideration is given to the relationship of the Proposed Development to those elements of setting which have been qualitatively defined as most important in contributing to the value of the heritage asset and the ability to understand, appreciate and experience it and its value.

**Table 3 Criteria for Classifying Magnitude of Change in Setting**

Magnitude	Criteria
High	<ul style="list-style-type: none"> <li>Direct and substantial change in view affecting a significant sightline to or from a ritual monument or prominent fort;</li> <li>Direct and substantial change in view affecting a key 'designed-in' view or vista from a Designed Landscape or Listed Building</li> <li>Direct severance of the relationship between a asset and its setting;</li> <li>Major imposition within a Cultural Landscape;</li> <li>A change that alters the setting of an asset such that it threatens the protection of the asset and the understanding of its cultural value.</li> </ul>
Medium	<ul style="list-style-type: none"> <li>Oblique change in view affecting an axis adjacent to a significant sightline to or from a ritual monument but where the significant sightline of the monument is not obscured;</li> <li>Oblique change in view affecting a key 'designed-in' view or vista from an Designed Landscape or Listed Building;</li> <li>Partial severance of the relationship between a asset and its setting;</li> <li>Notable alteration to the setting of an asset but not directly affecting those elements of the setting which contribute most to the understanding of the cultural value of the asset;</li> <li>Notable, but not major, imposition within a Cultural Landscape;</li> <li>A change that alters the setting of an asset such that the understanding of the asset and its cultural value is marginally diminished.</li> </ul>

Low	<ul style="list-style-type: none"> <li>Peripheral change in view affecting a significant sightline to or from a ritual monument, designed landscape or building;;</li> <li>Minor imposition within a Cultural Landscape;</li> <li>A change that alters the setting of an asset, but where those changes do not materially affect an observer's ability to understand, appreciate and experience the asset or its value.</li> </ul>
Marginal	All other changes to setting
None	No setting changes

## Assessing Level of Effect on Setting

**10.9** The level of effect resulting from changes in the setting of cultural heritage assets is judged to be the interaction of the asset's sensitivity (Table 10.1) and the magnitude of the change (Table 10.2) and also takes into consideration the importance of the asset (Table 10.1). In order to provide a level of consistency the assessment of sensitivity, the prediction of magnitude of change and the assessment of level of effect have been guided by pre-defined criteria. A qualitative descriptive narrative is also provided for each asset to summarise and explain each of the professional value judgments that have been made in reaching a judgement on sensitivity of the asset and the magnitude of change.

**10.10** The interactions that guide the determination of level of effect on settings of the assets in question is shown in Table 4.

**Table 4 Method of rating level of effect on setting of heritage assets by the Proposed Development**

Magnitude of Change	Relative Sensitivity			
	Marginal	Low	Medium	High
<i>High</i>	Minor	Minor-Moderate	Moderate	Major
<i>Medium</i>	Negligible	Minor	Minor-Moderate	Moderate
<i>Low</i>	Neutral	Negligible	Minor	Minor-Moderate
<i>Marginal</i>	Neutral	Neutral	Negligible	Minor

The levels of effect recorded in dark grey highlighted cells are 'significant'

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## Appendix 10.3: Legislative and Planning Policy Context

# BURIED HERITAGE (ARCHAEOLOGY) & BUILT HERITAGE Appendices

## Appendix 10.3

### Planning Policy

#### Legislation and Guidance

##### Legislation

**10.11** Statutory protection for archaeology is outlined in the Ancient Monuments and Archaeological Areas Act (1979) as amended by the National Heritage Act (1983). A schedule of nationally significant archaeological sites subject to legal protection is maintained by Historic England (HE), which is a statutory consultee in the planning process.

**10.12** Listed Buildings and Conservation Areas receive protection under the Planning (Listed Buildings and Conservation Areas) Act 1990.

##### Planning Policy: National Planning Policy Framework

**10.13** The National Planning Policy Framework (NPPF) sets out the government's planning policies for England and how these are expected to be applied, with a central theme of "presumption in favour of sustainable development"<sup>3</sup>. Planning policy regarding the historic environment is outlined in Chapter 12 of the NPPF, with an emphasis on the need to determine the significance of any heritage assets, including any contribution to this made by their setting, that may potentially be affected by a proposed development<sup>4</sup>. This requires, as a minimum that the relevant historic environment record should be consulted and effects on heritage assets assessed using appropriate expertise. Where a site at which development is proposed includes, or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

**10.14** Where designated assets are concerned, great weight should be given to the asset's conservation and any loss of significance should require "clear and convincing justification"<sup>5</sup>.

**10.15** Effects upon non-designated heritage assets are also a pertinent planning consideration. Where a heritage asset is to be lost, either in part or in whole, as a result of the development, the local planning authority should require developers to:

*"...record and advance the understanding of the significance of any heritage assets [...] in a manner appropriate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible".<sup>6</sup>*

##### Planning Policy: Local Planning Policy

**10.16** The Cherwell Local Plan 2011-2031 was adopted in July 2015. It contains Policy ESD 15 – The Character of the Built and Historic Environment, which states that:

*"Successful design is founded upon an understanding and respect for an area's unique built, natural and cultural context. New development will be expected to complement and enhance the character of its context through sensitive siting, layout and high quality design. All new development will be required to meet high*

*design standards. Where development is in the vicinity of any of the district's distinctive natural or historic assets, delivering high quality design that complements the asset will be essential.*

*New development proposals should:*

- *Be designed to deliver high quality safe, attractive, durable and healthy places to live and work in. Development of all scales should be designed to improve the quality and appearance of an area and the way it functions;*
- *Deliver buildings, places and spaces that can adapt to changing social, technological, economic and environmental conditions;*
- *Support the efficient use of land and infrastructure, through appropriate land uses, mix and density/development intensity;*
- *Contribute positively to an area's character and identity by creating or reinforcing local distinctiveness and respecting local topography and landscape features, including skylines, valley floors, significant trees, historic boundaries, landmarks, features or views, in particular within designated landscapes, within the Cherwell Valley and within conservation areas and their setting;*
- *Conserve, sustain and enhance designated and non-designated 'heritage assets' (as defined in the NPPF) including buildings, features, archaeology, conservation areas and their settings, and ensure new development is sensitively sited and integrated in accordance with advice in the NPPF. Proposals for development that affect non-designated heritage assets will be considered taking account of the scale of any harm or loss and the significance of the heritage asset as set out in the NPPF. Regeneration proposals that make sensitive use of heritage assets, particularly where these bring redundant or under used buildings or areas, especially any on English Heritage's At Risk Register, into appropriate use will be encouraged;*
- *Include information on heritage assets sufficient to assess the potential impact of the proposal on their significance. Where archaeological potential is identified this should include an appropriate desk based assessment and, where necessary, a field evaluation;*
- *Respect the traditional pattern of routes, spaces, blocks, plots, enclosures and the form, scale and massing of buildings. Development should be designed to integrate with existing streets and public spaces, and buildings configured to create clearly defined active public frontages;*
- *Reflect or, in a contemporary design response, re-interpret local distinctiveness, including elements of construction, elevational detailing, windows and doors, building and surfacing materials, mass, scale and colour palette;*
- *Promote permeable, accessible and easily understandable places by creating spaces that connect with each other, are easy to move through and have recognisable landmark features;*
- *Demonstrate a holistic approach to the design of the public realm to create high quality and multi-functional streets and places that promotes pedestrian movement and integrates different modes of transport, parking and servicing. The principles set out in The Manual for Streets should be followed;*
- *Consider the amenity of both existing and future development, including matters of privacy, outlook, natural lighting, ventilation, and indoor and outdoor space;*
- *Limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation;*
- *Be compatible with up to date urban design principles, including Building for Life, and achieve Secured by Design accreditation;*
- *Consider sustainable design and layout at the masterplanning stage of design, where building orientation and the impact of microclimate can be considered within the layout;*
- *Incorporate energy efficient design and sustainable construction techniques, whilst ensuring that the aesthetic implications of green technology are appropriate to the context (also see Policies ESD 1 - 5 on climate change and renewable energy);*

<sup>3</sup> DCLG: Department for Communities and Local Government (2012). National Planning Policy Framework, 3

<sup>4</sup> DCLG: Department for Communities and Local Government (2012). National Planning Policy Framework, 128

<sup>5</sup> DCLG: Department for Communities and Local Government (2012). National Planning Policy Framework, 132

<sup>6</sup> DCLG: Department for Communities and Local Government (2012). 2012 National Planning Policy Framework,

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- Integrate and enhance green infrastructure and incorporate biodiversity enhancement features where possible (see Policy ESD 10: Protection and Enhancement of Biodiversity and the Natural Environment and Policy ESD 17 Green Infrastructure). Well designed landscape schemes should be an integral part of development proposals to support improvements to biodiversity, the micro climate, and air pollution and provide attractive places that improve people's health and sense of vitality; and
- Use locally sourced sustainable materials where possible.

The design of all new development will need to be informed by an analysis of the context, together with an explanation and justification of the principles that have informed the design rationale. This should be demonstrated in the Design and Access Statement that accompanies the planning application. The Council expects all the issues within this policy to be positively addressed through the explanation and justification in the Design & Access Statement. Further guidance can be found on the Council's website.

The Council will require design to be addressed in the pre-application process on major developments and in connection with all heritage sites. For major sites/strategic sites and complex developments, Design Codes will need to be prepared in conjunction with the Council and local stakeholders to ensure appropriate character and high quality design is delivered throughout. Design Codes will usually be prepared between outline and reserved matters stage to set out design principles for the development of the site. The level of prescription will vary according to the nature of the site."

## National Guidance

- 10.17** The National Planning Policy Guidance (NPPG) was released in March 2014 by DCLG and replaced Planning Policy Statement 5: Planning for the Historic Environment Practice Guide. The NPPG contains guidance on the implementation of the NPPF policies on conserving and enhancing the historic environment.
- 10.18** In terms of the heritage assets considered here the most important sections of the Guidance relate to non-designated heritage assets. Issues relating to the setting of designated heritage assets and to harm are addressed under separate headings.

## Non-designated assets

- 10.19** In terms of non-designated assets, NPPG states that:

*"The National Planning Policy Framework identifies two categories of non-designated site of archaeological interest:*

*(1) Those that are demonstrably of equivalent significance to scheduled monuments and are therefore considered subject to the same policies as those for designated heritage assets...*

*(2) Other non-designated heritage assets of archaeological interest. By comparison this is a much larger category of lesser heritage significance, although still subject to the conservation objective. On occasion the understanding of a site may change following assessment and evaluation prior to a planning decision and move it from this category to the first*

*Where an asset is thought to have archaeological interest, the potential knowledge which may be unlocked by investigation may be harmed even by minor disturbance, because the context in which archaeological evidence is found is crucial to furthering understanding.*

*Decision-taking regarding such assets requires a proportionate response by local planning authorities. Where an initial assessment indicates that the site on which development is proposed includes or has potential to include heritage assets with archaeological interest, applicants should be required to submit an appropriate desk-based assessment and, where necessary, a field evaluation. However, it is estimated following an initial*

*assessment of archaeological interest only a small proportion – around 3 per cent – of all planning applications justify a requirement for detailed assessment".<sup>7</sup>*

## Setting

- 10.20** With regard to setting, Paragraph 13 of the NPPG states that:

*"A thorough assessment of the impact on setting needs to take into account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it".<sup>8</sup>*

- 10.21** The NPPF defines setting as:

*"The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral"<sup>9</sup>.*

- 10.22** In March 2015, Historic England published an updated guidance document on setting as part of their Good Practice Advice Notes intended to explain how to apply the policies contained in the NPPF. This document states:

*"Setting is not a heritage asset, nor a heritage designation, though land within a setting may itself be designated. Its importance lies in what it contributes to the significance of the heritage asset. This depends on a wide range of physical elements within, as well as perceptual and associational attributes pertaining to, the heritage asset's surroundings"<sup>10</sup>.*

- 10.23** The Historic England Guidance sets out the ways in which setting may contribute to the value of a heritage asset. It advocates a five stage approach which comprises:

- the identification of the heritage assets;
- an assessment of the contribution of setting to the asset's value;
- an assessment of potential effects upon the setting (and thus the value of the asset) by a proposed development/change;
- an exploration of potential enhancement and/or mitigation measures; and
- to make, document and monitor the outcomes of the decision made.<sup>11</sup>

- 10.24** The guidance provides a checklist of potential attributes of setting which may contribute to, or make appreciable the value of the asset in question. HE acknowledges that the checklist is non-exhaustive and that not all attributes will apply in all cases.

- 10.25** The current assessment has regard to the HE checklist, and the guidance in general, but, in the interests of being proportionate to the effects that would occur, only discusses attributes of setting where these are found

<sup>7</sup> DCLG: Department for Communities and Local Government (2014). Planning Practice Guide, Para 40

<sup>8</sup> DCLG: Department for Communities and Local Government (2014). Planning Practice Guide, Para 13

<sup>9</sup> DCLG: Department for Communities and Local Government (2012). National Planning Policy Framework, 56

<sup>10</sup> Historic England (2015). Good Practice Advice Note 3: Setting, 4.

<sup>11</sup> Historic England (2015). Good Practice Advice Note 3: Setting, 7.

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to contribute to the value of the asset. Similarly, in many cases effects upon setting are 'less than substantial' and are not significant. As such, it is not always necessary or appropriate to propose mitigation or enhancement measures. If relevant, mitigation and enhancement measures are identified as part of this assessment.

**10.26** The final bullet point set out in the HE guidance does not apply to this assessment as the monitoring of decision outcomes can only be undertaken once the planning decision in question has been made.

## Harm

**10.27** Developments can cause harm to heritage assets both through direct physical effects upon particular assets and/or through indirect effects on the setting of cultural heritage assets.

**10.28** The NPPF, where designated heritage assets are concerned, requires a judgement to be made as to the level of harm that could be caused to heritage assets by development. It requires us to indicate whether that harm would be 'substantial' or 'less than substantial', and the level of harm predicted establishes the planning test to be applied.

**10.29** Harm is defined by HE as:

*"Change for the worse, here primarily referring to the effect of inappropriate interventions on the heritage values of a place."*<sup>12</sup>

**10.30** The NPPG notes that:

*"What matters in assessing if a proposal causes substantial harm is the impact on the significance of the heritage asset"*.<sup>13</sup>

**10.31** The NPPG notes that the 'substantial' harm is a 'high test' and that as such it is unlikely to result in many cases<sup>14</sup>.

**10.32** Direct effects cause a reduction or loss of cultural value or heritage significance because the physical alteration of the site, monument, building or feature reduces its evidential value and its ability to inform this and future generations about our past. If the physical effect materially alters the appearance of the heritage asset it may effect on its aesthetic value.

**10.33** Conversely, adverse indirect effects on setting commonly reduce the aesthetic value of the cultural heritage asset; but in some special cases can reduce the evidential value of a building or monument, principally by interrupting, or in severe cases completely obstructing, some designed-in view to or from the asset or by adversely affecting the ability of the observer to appreciate the heritage value of the asset. Such an effect upon setting would reduce the information content, and thus the overall cultural value of the asset.

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<sup>12</sup> Historic England (2008). Conservation Principles, 71.

<sup>13</sup> DCLG: Department for Communities and Local Government (2014). Planning Practice Guide, Para 17.

<sup>14</sup> DCLG: Department for Communities and Local Government (2014). Planning Practice Guide, Para 17

# ES Volume II: Technical Appendices

## Appendix 10.4: Site Walkover



# BURIED HERITAGE (ARCHAEOLOGY) & BUILT HERITAGE

## Appendix 10.4

### Site walkover

- 10.34** A walkover of the site was undertaken on 24<sup>th</sup> May 2017. The conditions were bright, sunny and warm. Transects were walked over the entire site.
- 10.35** The site forms a parcel of agricultural land which, at the time of visiting, contained crops up to knee height (Plates 1 – 3). The site forms an irregular shape which is divided into two portions due to a large linear trench which runs north to south and then dog-legs to the east (Plate 4). The periphery of the site is bound by high hedge rows to the south-east, south-west and west. A Tesco Superstore and its access road are situated to the north of the site and the A41 followed by open fields lie to the west. The site, as a whole, is very flat.
- 10.36** The north-western corner of the site showed signs of temporary works in the area with the presence of a gravel track and building debris (Plate 5). It was thought this was either the remains of the land belonging to the farm that once stood in the area, or the remains of a compound area in connection with the construction of the Tesco Superstore. Two concrete manhole rings were visible above ground in a north-south alignment towards the eastern boundary of the site (Plate 2). This was presumably the result of the new sewer pipeline that was installed in 2010 and monitored by a watching brief (site 235).
- 10.37** No previously unidentified heritage assets were identified during the walkover survey. Nor were any areas of truncation noted, with the exception of the gravel track. It should be noted that the height of the crop at the time of the walkover limited the visibility of any topographic features that may be present within the site.

# ES Volume II: Technical Appendices

## Appendix 10.5: Plates and Figures

# BURIED HERITAGE (ARCHAEOLOGY) & BUILT HERITAGE Appendices

## Appendix 10.5 Plates and Figures



Plate 1: Eastern half of Proposed Development site, looking east



Plate 2: Proposed Development site looking south, showing man-hole rings in central section of site



Plate 3: Western half of Proposed Development site, looking south-west



Plate 4: Field Boundary trench running north to south, looking south

# BURIED HERITAGE (ARCHAEOLOGY) & BUILT HERITAGE



Plate 5: Gravel track in north-west corner of Proposed Development site, looking west



Plate 6: Proposed Development site, looking east



Plate 7: View from Alchester Roman Town Scheduled Monument, looking north towards Proposed Development site

# ES Volume II: Technical Appendices

## Appendix 10.6: Written Scheme of Investigation

**Land North of Bicester Avenue Garden Centre (Bicester Business Park),  
Oxford Road, Bicester:**

**Environmental Impact Assessment Written Scheme of Investigation**

**Land North of Bicester Avenue Garden Centre  
(Bicester Business Park),  
Oxford Road, Bicester:  
Environmental Impact Assessment  
Written Scheme of Investigation**

*AOC Project No: 23757  
August 2017*

On Behalf of:	Trium 69-85 Tabernacle Street London EC2A 4BD
National Grid Reference (NGR):	457910,221631
AOC Project No:	23757
Prepared by:	Nuala C. Woodley
Date:	August 2017

This document has been prepared in accordance with AOC standard operating procedures.

Author: Nuala C. Woodley

Date: August 2017

Approved by: Lynne Roy

Date: August 2017

Draft/Final Report Stage: Draft

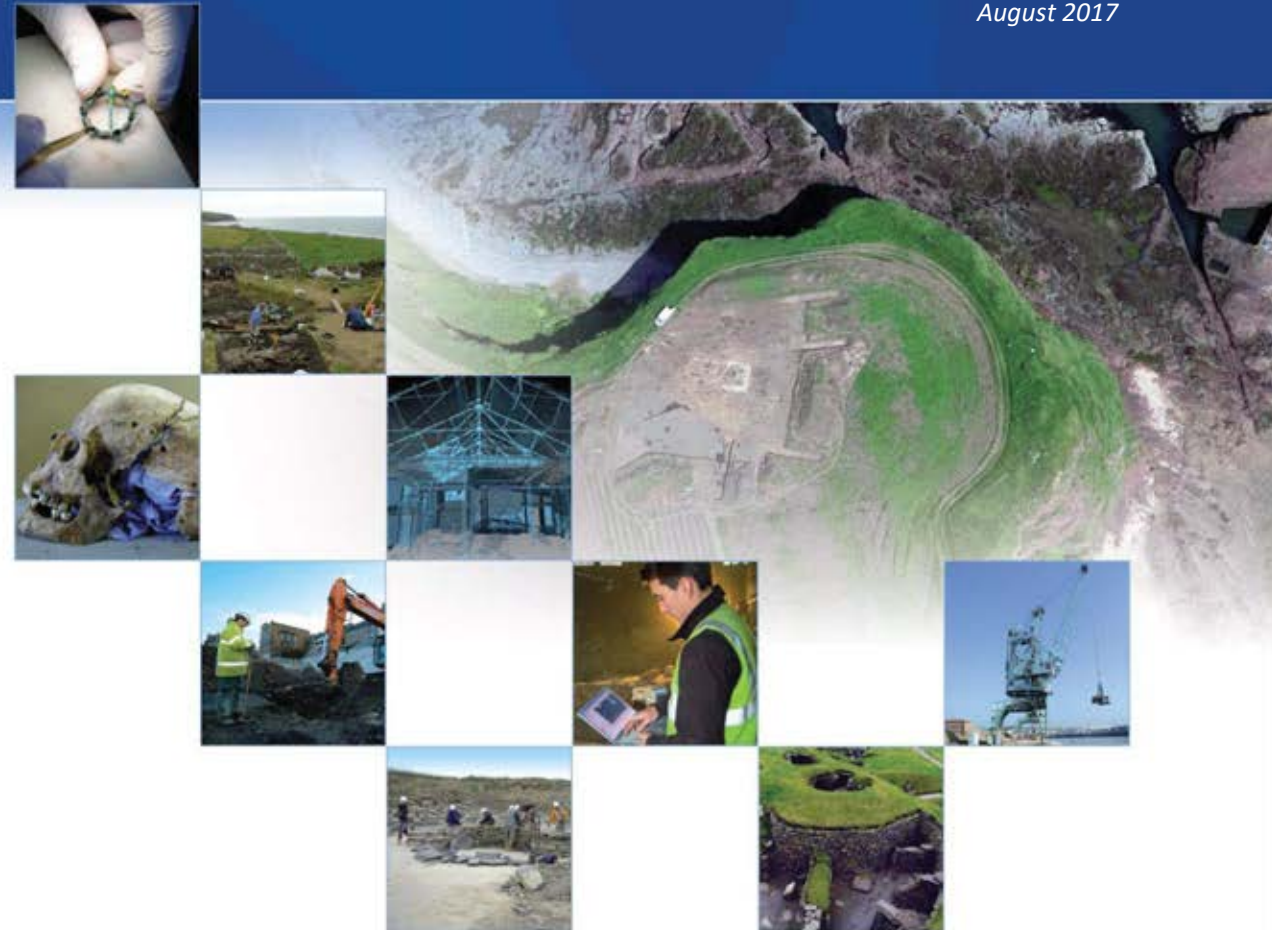
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## 1 INTRODUCTION

### 1.1 Project Background

- 1.1.1 AOC Archaeology has been commissioned by Trium to undertake an assessment of buried heritage (archaeology) and built heritage covering the proposed development of land north of Bicester Avenue Garden Centre (Bicester Business Park), Oxford Road, Bicester.
- 1.1.2 The need for and scope of the archaeological assessment will be determined by Cherwell District Council, who are advised on archaeological matters by Oxfordshire County Council County Archaeology Team.
- 1.1.3 The programme of archaeological works is in keeping with the policies outlined in current planning policy and guidance set out in National Planning Policy Framework (NPPF), Chapter 12; Local Planning Policy: Cherwell Local Plan, Policy ESD 15; and National Guidance; Paragraph 13.

### 1.2 Site location

- 1.2.1 The proposed development site, in Cherwell District Council (CDC) is approximately 13.1 hectares (ha) and is centred on National Grid Reference 457910,221631. It is bounded by a Tesco foodstore and farmland to the north, farmland to the east, the A41 (Oxford Road) to the west and Bicester Avenue Garden Centre and more fields to the south.
- 1.2.2 The proposed development includes the construction of a business park comprising between 55,000 and 60,000m<sup>2</sup> office use (B1), parking for approximately 2,000 cars, associated highway, infrastructure and earthworks. The office park will be made up of differently sized buildings which will vary in height between 2 and 4 storeys and located within a landscaping space. The site will be accessed from Lakeview Drive via the signalled controlled junction with the A41 Oxford Road.

### 1.3 Historical and Archaeological Background

- 1.3.1 The site is located to the south of Bicester and to the east of the Oxford Road (the A41). A Tesco superstore has recently been built immediately north of the site, whilst a retail park 'Bicester Avenue Garden Centre' stands to its south. The eastern boundary of the site cuts diagonally from northeast to southwest and is partially defined by a stream.
- 1.3.2 A 31 trench archaeological trial trench evaluation was undertaken across both the site and the area to the north (the Tesco site) in September and October 2007. The evaluation identified a quantity of exceptionally well preserved Mesolithic flint, which possibly suggests the presence of in situ deposits nearby. Possible evidence of late prehistoric and Roman settlement was also encountered including post holes and drip gullies which could potentially be associated with circular buildings. Boundary ditches were also identified. Whilst some of these ditches were clearly post-medieval others could potentially be late prehistoric. The evaluation was preceded by a desk-based assessment and a geophysical survey and a chapter on archaeology and heritage was included in the 2007 Environmental Statement (ES).
- 1.3.3 AOC undertook detailed archaeological investigations on the Tesco site between November 2013 and January 2014. The excavations revealed a sequence of at least seven Bronze Age buildings and activities either side of a relict watercourse. The buildings were represented by postholes forming two roundhouses which were kept in good repair and rebuilt, probably across generations and are likely to represent buildings of a farmstead. The permanence of settlement is also indicated by the presence of three cremation burials at the top of the hill above the farmstead. Other postholes represented fences, which may have enclosed stock enclosures or settlement boundaries on flat ground either side of a river. Roman and post-medieval features were also identified on the site.
- 1.3.4 Sixteen evaluation trenches were excavated in the southern and eastern parts of the current (2017) site during the 2007 evaluation. The southwestern corner of the site was not excavated at this time as it lay outside the 2007 site boundary. Nine trenches were excavated in the southern part of the site. Although archaeological features were found in five of these trenches, they were all either undated or of post-medieval origin. Fragments of Romano-British pottery were however recovered from the subsoil of one of the trenches. Seven trenches were excavated in the eastern part of the site, of which three, all positioned on

the eastern edge of the site contained archaeological remains, which suggest concentrations of archaeological activity on the eastern edge of the site. Prehistoric flints were recovered along with fragments of Romano-British and Medieval pottery.

- 1.3.5 In his comments to the local planning authority, Richard Oram, Oxfordshire Council's planning archaeologist commented that '*a further series of linear features located in one trench, Tr 30, at the South East corner of the site produced a large amount of worked flint. The majority of this flint work was dated to the Mesolithic and the assemblages contained four cores suggesting that the manufacturing of these tools was carried out in the very near vicinity. It is therefore likely that the development will disturb further aspects of the deposits located in the evaluation.*' (Oram letter to Oxfordshire District Council, 10 Dec 2007, Ref: RO/1189)
- 1.3.6 An historic map regression depicts the known location of a Roman Road along the western boundary of the site, along the current line of the Oxford Road, A41. Historic cartography indicates that the proposed development site has been located within agricultural fields since at least 1875. It is likely that the proposed site has been agricultural in nature since the medieval period as it is located to the south of a market town.

## 2 OBJECTIVES

- 2.1 The objectives of the assessment are to:
- i) identify and map the nature of the archaeological and built heritage resource within the site and surrounding study area from known documentary records, historic environment record data, historic maps and aerial photographs;
  - ii) determine through archaeological walkover survey if any archaeological remains are visible on the site and thence to determine the potential level of survival of any archaeology;
  - iii) to assesses the likely impact upon the known and potential heritage resources which will result from the proposed development.
  - iv) to liaise with Oxfordshire County Archaeological Service and the client in the event of significant archaeological features or historically identified features being seen as to the most appropriate mitigation response in safeguarding these features either by preservation *in situ*, if at all feasible, or by archaeological recording;
  - iii) to assesses the likely impact upon the known and potential heritage resources which will result from the proposed development.

## 3 ARCHAEOLOGICAL WORKS

### 3.1 Walkover Survey

- 3.1.1 An archaeological walkover survey of the proposed development site will be undertaken with the aim of identifying any previously unknown remains. The site will be systematically surveyed along transects spaced at 30 m intervals (dependant on topography). All known heritage assets will be assessed in the field to establish their survival, extent, significance and relationship to other assets. Weather and any other conditions affecting the visibility during the survey will also be recorded. All heritage assets encountered will be recorded and photographed. A hand-held GPS will be used to record the position and extent of each asset. All assets will be marked on plans, at a relevant scale keyed by means of Grid References to the Ordnance Survey mapping.
- 3.1.2 The walkover survey will also identify areas of the proposed development site that may require further archaeological works in advance of development. A strategy for undertaking further archaeological works if required will be agreed with the client and Oxfordshire County Archaeological Service.

### 3.2 Aerial Photograph Consultation

- 3.2.1 A search of aerial photographs held by Historic England's Archive in Swindon will be undertaken. Aerial photographs that show the site will be consulted in order to identify and map any potential archaeological features.

## 4 ASSESSMENT METHODOLOGY

### 4.1 Scope of Assessment

- 4.1.1 The assessment will be prepared in compliance with the Chartered Institute for Archaeologists' Standard and Guidance for Historic Environment Desk-Based Assessment (CIfA 1990, rev. 2008, 2011 & 2014) and relevant statutory requirements, national, regional and local guidance, including National Planning Policy and Guidance on cultural heritage as contained within NPPF (2012) and Historic England Good Practice Advice notes as well as local planning policy represented by The Cherwell Local Plan, 2011-2031.

- 4.1.2 A study area of 1km from the proposed development site will be used to assess the likely nature and extent of the archaeological and built heritage resource within the site and the immediate surrounding study area. The Oxfordshire Historic Environment Record (HER) of archaeological sites, finds, events, monuments and designations is the primary source of information concerning the current state of archaeological and architectural knowledge in the study area. The assessment will draw on information provided by the HER to establish descriptions of the heritage baseline conditions. The assessment will also draw on information in publically available cartographic sources, aerial photographic sources and archaeological/historical information from web-based and in-house sources as well as a walkover survey of the proposed development (see section 5 above). A full list of all designated and non-designated heritage assets identified during research for this assessment will be included within a gazetteer appended to the assessment.

- 4.1.3 All designated heritage assets within 1km of the proposed development including, Scheduled Monuments, Listed Buildings and Conservation Areas will be identified and shown on accompanying figures. The assessment will also include consideration of the visual sensitivity of these assets, based on their monument typologies.

### 4.2 Assessment Criteria

- 4.2.1 The assessment will be used to identify the known and likely archaeological potential of the site and the relative value or importance of such a resource/asset. Based on information provided by the client, and where possible, the likely magnitude of direct impacts upon such a resource and the potential for indirect impacts (e.g. impacts upon the setting of cultural heritage assets which may affect the significance of said assets) from the proposed development will be assessed. The criteria for assessing these factors will be detailed in the assessment.
- 4.2.2 The criteria for assessing archaeological potential are expressed as ranging along a scale of High, Medium, Low, Negligible and Uncertain.
- 4.2.3 Levels of importance in the report will be expressed as ranging along a scale of National, Regional, Local, Negligible and Unknown. The value or importance of heritage assets will be determined firstly by reference to existing designations – for example Scheduled Monuments are already classified as Nationally Important. For sites where no designation has previously been assigned, the likely importance of that resource will be based upon the available evidence and professional knowledge and judgment.
- 4.2.4 The likely magnitude of the impact of the proposed development works will be determined by identifying the level of effect from the proposed development upon the 'baseline' conditions of the heritage asset identified in the assessment. This effect can be either adverse (negative) or beneficial (positive) and will be ranked

according to the scale of major; moderate, minor and negligible. Where it is not possible to confirm the magnitude of impact (e.g. due to lack of development design information or details on buried deposits) a professional judgement as to the scale of such impacts will be applied.

- 4.2.5 The chapter will include a basic level assessment as to the likely impacts from the proposed turbine upon the setting of designated cultural heritage assets within the 1km study area, identifying those assets where there is potential for an impact upon setting. This will use Zone of Theoretical Visibility (ZTV) data provided by the client and will not include any specific site visits or use of wireframe models, etc.

## 5 OPERATIONAL FACTORS

### 5.1 Health & Safety

- 5.1.1 AOC Archaeology has always maintained high standards on-site and a copy of our Health & Safety policy is available on request. The Walkover Survey Officer (WSO) will liaise with landowner before coming on-site to ensure that our element of the works are conducted in a manner that is safe for our staff, Main Contractor staff and members of the public if appropriate.

### 5.2 Project team

- 5.2.1 One of AOC Archaeology's experienced Field Officers will complete the walkover survey.
- 5.2.2 The project will be managed by Nuala Woodley (ACIfA), AOC Consultancy Project Officer. Quality assurance will be provided by Dr Andrew Heald, Managing Director.

## 6 REFERENCES

Institute for Archaeologists' Standard and Guidance for Desk-Based Assessment (IfA 1990, rev. 2008 & 2011)

Historic England (2015). Good Practice Advice Note 3: Setting,

The Cherwell Local Plan 2011-2031

Department for Communities and Local Government (2012). National Planning Policy Framework

### APPENDIX 1

#### Desk-top assessment

The sources consulted as part of the desk-top study will depend on the type and level of data required and the material that is available to provide that information. Sources used may include, where available, all or some of the following listed below:

- i) Walkover survey (Appendix 5).
- ii) The relevant Local Sites and Monuments Record(s) and the National Monuments Record.
- iii) British Geological Survey maps.
- iv) Ordnance Survey maps of the site and its locality.
- v) Tithe, Apportionment and Parish maps.
- vi) Historic (pre-Ordnance Survey) and Estate maps of the area.
- vii) Appropriate archaeological and historical journals and books.
- viii) Historical documents held in local museums, libraries, record offices and other archives. This may be a selective survey given the scope of potential historic documentation for some sites.
- ix) Unpublished material held by local professional and amateur archaeological organisations and museums.
- x) Aerial photographs held by local authorities, Sites and Monuments Record, the National Library of Aerial Photographs, Cambridge University Collection of Aerial Photographs and other local parties.
- xi) Scheduled Ancient Monuments Lists; listed building lists; registers of parks and gardens and battlefields; any local authority constraint designations (eg conservation Areas).
- xii) All available borehole, trial pit and geotechnical data from the site and its immediate environs.
- xiii) Plans of services locations held by statutory undertakers.
- xiv) Fire insurance maps.
- xv) Old and New Statistical Accounts (in Scotland).



- xvi) Building Control Records.  
 xvii) Standing Building Assessment (Appendix 10).

**APPENDIX 2****Geophysical survey**

- 2.1 All geophysical survey work will be undertaken by AOC Archaeology Group's in-house geophysical survey team.  
 2.2 Selection of techniques will be made taking into account land use, geology, complicating factors (eg metal pipes and fences), known and/or suspected archaeology.  
 2.3 The report will contain background information on the site (as above) and a description of any anomalies located. An interpretation of the anomalies will also be given.  
 2.4 At least one plot of the data will be included, normally of dot density or grey scale type. Any enhancement of the image will be explicitly stated and the likely affect of the processing described.  
 2.5 Clear interpretative plans will be provided in a form that a non-technical reader can understand.  
 2.6 Plots and interpretative diagrams will be reproduced at a scale from which exact measurements can be taken. These will normally be 1:1000 for detailed survey and 1:2500 for other plans.  
 2.7 The basic computerised data will form part of the site archive.

**APPENDIX 3****Surface collection survey (fieldwalking)**

- 3.1 This type of survey will only be carried out in suitable ground visibility conditions. This effectively restricts the technique to arable land which has been ploughed, harrowed and left to weather for several weeks in autumn to early spring.  
 3.2 The collection grid will align with the Ordnance Survey grid unless surveying for a linear scheme when the transects will be parallel to the centre of the scheme. The grid will be established using measured survey techniques.  
 3.3 The spacing of transects and length of collection units will be as specified in the main part of the Written Scheme of Investigation. Each transect will be 2m wide. Collection units will be logged using a numeric 12 figure National Grid Reference which will identify the southern end of the unit.  
 3.4 Transects will be measured cumulatively on the ground using fixed-length strings to avoid variation in individual pace. Sighting poles will be placed at opposite ends of the land parcel to mark transects.  
 3.5 All material considered to be man-made or not local to the area will be collected and recorded by the individual collection unit. The exception to this is where dense concentrations of building material are present when a representative sample is retained per collection unit.  
 3.6 Stone scatters, areas of soil discolouration and outcrops of natural substrata will be recorded and plotted by stint.  
 3.7 Pro-forma sheets will be used to record details of walker, soil/crop conditions, slope/topography, and lighting/weather conditions for each transect and presence/absence of finds for each collection unit.  
 3.8 Finds will be washed and sorted into groups in order to facilitate identification. Finds will be bagged according to artefact class within each collection unit.  
 3.9 Finds will be identified, quantified and recorded directly on to computer. The results will be plotted using a CAD graphics programme.  
 3.10 All significant artefact distributions will be plotted by field, group of fields or appropriate length for a linear scheme, at 1:2500, with separate plans for each period or relevant subdivision, indicating the numbers of artefacts per stint.  
 3.11 The pottery and other relevant artefacts will be scanned to assess the date range of the assemblage.  
 3.12 All finds and samples will be treated in a proper manner and to standards agreed in advance with the recipient museum or other body. These will be cleaned, conserved, bagged and boxed in accordance with the guidelines set out in UKIC's "Conservation Guidelines No 2".

**APPENDIX 4****Earthwork surveys**

- 4.1 Base points will be established using a Total Station.  
 4.2 Hachured plans will normally be prepared at 1:1250 or 1:2500 for most classes of earthwork. In certain cases more detailed survey by contouring will be carried out.  
 4.3 Appropriately experienced personnel will undertake the survey work.  
 4.4 All prepared plans will be presented with an accompanying descriptive text.

**APPENDIX 5****Walkover Survey**

- 5.1 The proposed study area will be walked over in a systematic manner. Approximately 30m wide transects will be used, although this can be reduced where conditions demand.  
 5.2 All features identified (including modern features) will be given a unique number. The location of each feature will be marked on a 1:10,000 map. A photographic and written record will be compiled.

**APPENDIX 6****Test pits**

- 6.1 Spacing and size of test pits will vary according to local topography, geology, and known or potential archaeology. Spacing and size will be as specified in the Written Scheme of Investigation.  
 6.2 Test pits will be laid out in relation to the Ordnance Survey national grid.  
 6.3 The most appropriate tools will be used taking into account the prevailing conditions at the time of the work.  
 6.4 A specified volume of topsoil from each test pit will be sieved through a 10mm mesh.  
 6.5 Conditions, contexts and artefact totals will be recorded on pro-forma sheets.  
 6.6 Subdivisions within the excavated material will be based on soil stratigraphy and spits of 100mm within each stratigraphical unit.  
 6.7 All artefact totals will be recorded by class.  
 6.8 Finds will be washed and sorted into groups in order to facilitate identification. Finds will be bagged according to artefact class within each collection unit.  
 6.9 Finds will be identified, quantified and recorded directly onto computer where appropriate. The results will be plotted using a CAD graphics programme when appropriate.  
 6.10 All significant artefact distributions will be plotted by field, group of fields or appropriate length for a linear scheme at 1:2500, with separate plans for each period or relevant subdivision, indicating the numbers of artefacts per test pit.  
 6.11 The pottery and other relevant artefacts will be scanned to assess the date range of the assemblage.  
 6.12 All finds and samples will be treated in a proper manner and to standards agreed in advance with the recipient museum or other body. These will be cleaned, conserved, bagged and boxed in accordance with the guidelines set out in UKIC's "Conservation Guidelines No 2".

**APPENDIX 7****Machine excavated trenches***Excavation*

- 7.1 The entire site will be visually inspected before the commencement of any machine excavation. This will include the examination of any available exposures (eg recently cut ditches and geo-technical test pits).  
 7.2 Normally trench positions will be accurately surveyed prior to excavation and related to the National Grid. It may be necessary to survey the positions after excavation in some instances.  
 7.3 All machining will be carried out by plant of an appropriate size. Normally, this will be a JCB 3CX (or similar) or 360° tracked excavator with a 1.4 or 1.8m wide toothless bucket. Where access or working space is restricted a mini excavator such as a Kubota KH 90 will be used.  
 7.4 All machining will be carried out under direct control of an experienced archaeologist.  
 7.5 Undifferentiated topsoil or overburden of recent origin will be removed in successive level spits (approximately <0.5m) down to the first significant archaeological horizon.  
 7.6 Excavated material will be examined in order to retrieve artefacts to assist in the analysis of the spatial distribution of artefacts.  
 7.7 On completion of machine excavation, all faces of the trench that require examination or recording will be cleaned using appropriate hand tools.  
 7.8 All investigation of archaeological horizons will be by hand, with cleaning, inspection, and recording both in plan and section.  
 7.9 Within each significant archaeological horizon a minimum number of features required to meet the aims of the project will be hand excavated. Pits and postholes normally will be sampled by half-sectioning although some features may require complete excavation. Linear features will be sectioned as appropriate. Features not suited to excavation within the confines of narrow trenches will not be sampled. No deposits will be entirely removed unless this is unavoidable. As the objective is to define remains it will not necessarily be the intention to fully excavated all trenches to natural stratigraphy. However, the full depth of archaeological deposits across the entire site will be assessed. Even in the case where no remains have been located the stratigraphy of all evaluation trenches will be recorded.  
 7.10 Any excavation, whether by machine or by hand, will be undertaken with a view to avoiding damage to any archaeological features or deposits which appear to be demonstrably worthy of preservation *in situ*.  
 7.11 For palaeoenvironmental research different sampling strategies will be employed according to established research targets and the perceived importance of the strata under investigation. AOC Archaeology conventionally recovers three main categories of sample;  
 i) Routine Soil Samples; a representative 500g sample from every excavated soil context on site. This sample is used in the characterisation of the sediment, potentially through pollen analysis, particle size analysis, pH analysis, phosphate analysis and loss-on-ignition;  
 ii) Standard Bulk Samples; a representative 10 litre sample from every excavated soil context on site. This sample is used, through floatation sieving, to recover a sub-sample of charred macroplant material, faunal remains and artefacts;  
 iii) Purposive or Special Samples; a sample from a sediment which is determined, in field, to either have the potential for dating (wood charcoal for radiocarbon dating or *in situ* hearths for magnetic susceptibility dating) or for the recovery of enhanced palaeoenvironmental information (waterlogged sediments, peat columns, etc).  
 7.12 Any finds of human remains will be left *in situ*, covered and protected. In Scotland the local police will be informed. If removal is essential this will only take place with police approval, and in compliance with Historic Scotland's Operational Policy Paper 'The

*Treatment of Human Remains in Archaeology*'. In England and Wales the coroner's office will be informed. If removal is essential it will only take place under the relevant Home Office licence and local authority environmental health regulations.

7.13 All finds of gold and silver will be moved to a safe place. Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the artefacts from theft or damage. In Scotland the recovery of such material, along with all other finds, will be reported to the Queen's and Lord Treasurer's Remembrancer. In England and Wales the recovery of such material will be reported to the coroner's office according to the procedures relating to Treasure Trove.

7.14 After recording, the trenches will be backfilled with excavated material.

#### Recording

7.15 For each trench, a block of numbers in a continuous sequence will be allocated.

7.16 Written descriptions, comprising both factual data and interpretative elements, will be recorded on standardised sheets.

7.17 Where stratified deposits are encountered a 'Harris'-type matrix will be compiled during the course of the excavation.

7.18 The site grid will be accurately tied into the National Grid and located on the 1:2500 or 1:1250 map of the area.

7.19 Plans will normally be drawn at a scale of 1:100, but on urban or deeply stratified sites a scale of 1:50 or 1:20 will be used. Burials will be drawn at 1:10. Other detailed plans will be drawn at an appropriate scale.

7.20 Long sections of trenches showing layers and any cut features will be drawn at 1:50. Sections of features or short lengths of trenches will be drawn at 1:20.

7.21 Generally all sections will be accurately related to Ordnance Datum. There may, occasionally, be instances where this is unnecessary when it will be agreed with the local authority's archaeological representative in advance.

7.22 Registers of sections and plans will be kept.

7.23 A full colour print and colour transparency photographic record will be maintained. This will illustrate the principal features and finds both in detail and in a general context. The photographic record will also include working shots to represent more generally the nature of the fieldwork.

7.24 A register of all photographs taken will be kept on standardised forms.

7.25 All recording will be in accordance with the standards and requirements of the *Archaeological Field Manual* (Museum of London Archaeology Service 3rd edition 1994).

#### Finds

7.26 All identified finds and artefacts will be collected and retained. Certain classes of material, ie post-medieval pottery and building material, may on occasion be discarded after recording if a representative sample is kept. No finds will be discarded without the prior approval of the archaeological representative of the local authority and the receiving museum.

7.27 Finds will be scanned to assess the date range of the assemblage with particular reference to pottery. In addition the artefacts will be used to characterise the site, and to establish the potential for all categories of finds should further archaeological work be necessary.

7.28 All finds and samples will be treated in a proper manner and to standards agreed in advance with the recipient museum. Finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the guidelines set out in United Kingdom Institute for Conservation's *Conservation Guidelines No. 2*.

7.29 In England and Wales, at the beginning of the project (prior to commencement of fieldwork) the landowner and the relevant museum will be contacted regarding the preparation, ownership and deposition of the archive and finds. In Scotland all archaeological material recovered belongs to the Crown and its disposal is administered by the Queen's and Lord Treasurer's Remembrancer.

#### APPENDIX 8

##### Evaluation reports

8.1 The style and format of the evaluation report will be determined by AOC Archaeology, but will be compliant with Historic Scotland's issued guidance on Data Structure Reports. The report will include as a minimum the following;

- i) A location plan of the site.
- ii) A location plan of the trenches and/or other type of fieldwork strategy employed.
- iii) Plans and sections of features and/or extent of archaeology located. These will be at an appropriate scale.
- iv) A summary statement of the results.
- v) A table summarising per trench the deposits, features, classes and numbers of artefacts encountered and spot dating of significant finds.
- vi) Consideration to the methodology will be given along with a confidence rating for the results.

8.2 When an evaluation is followed by an excavation the procedures defined in English Heritage's *Management of Archaeological Projects* 2nd edition 1991 will be followed for immediate post-field archive preparation and initial assessment. It will then be agreed with the local authority's archaeological advisor which aspects will need to be taken forward to the report stage.

#### APPENDIX 9

##### Area excavation

9.1 Prior to the stripping of any area excavation, all appropriate surveys (eg geophysical, earthwork, contour) or sampling strategies (eg for topsoil artefact densities, metal detecting, phosphate analysis) will be undertaken.

9.2 In most cases sites will be mechanically stripped of topsoil and other overburden. An appropriate machine will always be used. This will normally be a 360° tracked excavator with a between 1.4 and 2.4m wide toothless bucket. In other cases a JCB 3CX (or similar), or for work with restricted access or working room a mini-excavator such as a Kubota KH 90 will be used. Suitably sized dumpers or lorries will be employed to remove spoil. No plant will be allowed to cross stripped areas.

9.3 All machining will be undertaken under the direct control of experienced archaeologists.

9.4 All undifferentiated topsoil or overburden will be removed down to the first significant archaeological horizon in level spits. The archaeological horizon to which the material will be cleared will have first been established by an evaluation or by the digging of test pits.

9.5 Depending on the aims of the project, the excavated spoil may be monitored in order to recover artefacts. Where their findspots are plotted this will usually be on a 2m grid.

9.6 The surface exposed by the stripping will be cleaned using appropriate hand tools.

9.7 Should the site grid not have already been established it will be done at the cleaning stage. The grid will normally be based on a 10m spacing and related to the National Grid. A temporary bench mark related to Ordnance Datum will be founded

9.8 After the cleaning and planning of the excavation area the sampling strategy will be finalised. This will take into account the project aims (which may need modifying at this stage) and the type, quality and quantity of remains revealed. The sampling strategy will normally seek to maintain at least the following levels;

- i) all structures and all zones of specialised activity (eg funerary, ceremonial, industrial, agricultural processing) will be fully excavated and all relationships recorded;
- ii) ditches and gullies will have all relationships defined, investigated and recorded. All terminals will be excavated. Sufficient lengths of the feature will be excavated to determine the character of the feature over its entire course; the possibility of re-cuts of parts of the feature, and not the whole, will be considered. This will be achieved by a minimum 10% sample of each feature (usually a 1m section every 10m).
- iii) Sufficient artefact assemblages will be recovered (where possible) to assist in dating the stratigraphic sequence and for obtaining ample ceramic groups for comparison with other sites;
- iv) all pits, as a minimum, will be half-sectioned. Usually at least 50% (by number) of the pits will be fully excavated. Decisions as to which pits will be fully excavated will be taken in the light of information gained in the half-sectioning taking into consideration, amongst other things; pit function, artefact content and location;
- v) for post and stake holes where they are clearly not forming part of a structure (see above) 100% (by number) will be half-sectioned ensuring that all relationships are investigated. Where deemed necessary, by artefact content, a number may demand full excavation;
- vi) for other types of feature such as working hollows, quarry pits, etc the basic requirement will be that all relationships are ascertained. Further investigation will be a matter of on-site judgement, but will seek to establish as a minimum their extent, date and function;
- vii) for layers, an on-site decision will be made as to the limits of their excavation. The factors governing the judgement will include the possibility that they mask earlier remains, the need to understand function and depositional processes, and the necessity to recover sufficient artefacts to date the deposit and to meet the project aims.

9.9.1 For palaeoenvironmental research different sampling strategies will be employed according to established research targets and the perceived importance of the strata under investigation. AOC Archaeology conventionally recovers three main categories of sample;

- i) Routine Soil Samples; a representative 500g sample from every excavated soil context on site. This sample is used in the characterisation of the sediment, potentially through pollen analysis, particle size analysis, pH analysis, phosphate analysis and loss-on-ignition;
- ii) Standard Bulk Samples; a representative 10 litre sample from every excavated soil context on site. This sample is used, through floatation sieving, to recover a sub-sample of charred macroplant material, faunal remains and artefacts;
- iii) Purposive or Special Samples; a sample from a sediment which is determined, in field, to either have the potential for dating (wood charcoal for radiocarbon dating or *in situ* hearths for magnetic susceptibility dating) or for the recovery of enhanced palaeoenvironmental information (waterlogged sediments, peat columns, etc).

9.10 Any finds of human remains will be left *in situ*, covered and protected. In Scotland the local police will be informed. If removal is essential this will only take place with police approval, and in compliance with Historic Scotland's Operational Policy Paper '*The Treatment of Human Remains in Archaeology*'. In England and Wales the coroner's office will be informed. If removal is essential it will only take place under the relevant Home Office licence and local authority environmental health regulations.

9.11 All finds of gold and silver will be moved to a safe place. Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the artefacts from theft or damage. In Scotland the recovery of such material, along with all other finds, will be reported to the Queen's and Lord Treasurer's Remembrancer. In England and Wales the recovery of such material will be reported to the coroner's office according to the procedures relating to Treasure Trove.

#### Recording

- 9.12 All on-site recording will be undertaken in accordance with the standards and requirements of the *Archaeological Site Manual* (Museum of London 1994).
- 9.13 A continuous unique numbering system will be employed.
- 9.14 Written descriptions, comprising both factual data and interpretative elements, will be recorded on standardised sheets.
- 9.15 Where stratified deposits are encountered a 'Harris'-type matrix will be compiled during the course of the excavation.
- 9.16 The site grid will be accurately tied into the National Grid and located on the 1:2500 or 1:1250 map of the area.
- 9.17 Plans will normally be drawn at a scale of 1:100, but on urban or deeply stratified sites a scale of 1:50 or 1:20 will be used. Burials will be drawn at 1:10. Other detailed plans will be drawn at an appropriate scale.
- 9.18 Long sections of trench edges or internal baulks showing layers and any cut features will be drawn at 1:50 or 1:20 depending on amount of detail contained. Sections of features will be drawn at 1:20.
- 9.19 All sections will be accurately related to Ordnance Datum.
- 9.20 Registers of sections and plans will be kept.
- 9.21 A full colour print and colour transparency photographic record will be maintained. This will illustrate the principal features and finds both in detail and in a general context. The photographic record will also include working shots to represent more generally the nature of the fieldwork.
- 9.22 A register of all photographs taken will be kept on standardised forms.

#### *Finds*

- 9.23 All identified finds and artefacts will be collected and retained. Certain classes of material, ie post-medieval pottery and building material may on occasion be discarded after recording if a representative sample is kept. No finds will be discarded without the prior approval of the archaeological representative of the local authority and the receiving museum.
- 9.24 All finds and samples will be treated in a proper manner and to standards agreed in advance with the recipient museum. Finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the guidelines set out in United Kingdom Institute for Conservation's *Conservation Guidelines No. 2*.
- 9.25 In England and Wales, at the beginning of the project (prior to commencement of fieldwork) the landowner and the relevant museum will be contacted regarding the preparation, ownership and deposition of the archive and finds. In Scotland all archaeological material recovered belongs to the Crown and its disposal is administered by the Queen's and Lord Treasurer's Remembrancer.

#### *Archiving, post-excavation and publication*

- 9.26 Following completion of each stage or the full extent of the fieldwork (as appropriate) the site archive will be prepared in the format agreed with the receiving institution.
- 9.27 On completion of the archive a summary report will be prepared. This will include;
- i)* an illustrated summary of the results to-date indicating to what extent the project aims were fulfilled;
  - ii)* a summary of the quantities and potential for analysis of the information recovered for each category of site, artefact, dating and palaeoenvironmental data;
  - iv)* proposals for analysis and publication.
- 9.28 The proposals for analysis and publication will include;
- i)* a list of the revised project aims arising from the fieldwork and post-excavation assessment;
  - ii)* a method statement which will make clear how the methods advocated are those best suited to ensuring that the data-collection will fulfil the stated aims of the project;
  - iii)* a list of all tasks involved in meeting the stated methods to achieve the aims and produce a report and research archive in the stated format;
  - iv)* details of the research team and their projected work programmes in relation to the tasks. Allowance will be made for general project-related tasks such as project meetings, management, editorial and revision time;
  - v)* a publication synopsis indicating publisher, report format and content shown by chapters, section and subheadings with the anticipated length of text sections and proposed number of illustrations.

- 9.29 The summary report embracing the analysis and publication proposals will be submitted to the client and the local authority's archaeological representative for approval.
- 9.30 Any significant variation in the project design, including timetables, proposed after the agreement of the proposals must be acceptable to the local authority's archaeological representative.
- 9.31 The results of the project will be published in an appropriate archaeological journal or monograph. The suitable level of publication will be dependent on the significance of the project results, but as a minimum the basic requirements of Appendix 7.1 of *Management of Archaeological Projects* (English Heritage 1991) will be met.

#### **APPENDIX 10**

##### **Standing Building Assessment**

- 10.1 A standing building assessment will normally take place in concordance with a Conservation Plan, but may also form part of a Desk-Based Assessment if required.

- 10.2 A visual inspection will be made of both the interior and exterior of the building(s) with a view to establishing the extent of the architecturally important elements that should be included in a later phase of historic building recording work.
- 10.3 A brief written record will be made in addition to digital photography of areas of interest to support recommendations and outline architectural features within the building(s).

#### **APPENDIX 11**

##### **Historic Building Recording: The Written Record (Levels 0-6)**

- 11.1 Pro forma building recording sheets will be used for the basic written record of the building(s) including comments on the condition, construction techniques, materials, fixtures and fittings and interpretation of function. A competent analysis will be made of all building phases and any relationship between buildings. Day Book records will also be kept for any levels of recording above Level 1.
- 11.2 At Level 4, the written record will encompass a thorough context description of each broad phase of construction and alteration with a view to formulating a stratigraphic matrix of the site.

#### **APPENDIX 12**

##### **Historic Building Recording: Photography (Levels 1-5)**

- 12.1 Photography will take place at all levels of building recording, and will be undertaken with a single lens reflex camera with through-the-lens (TTL) light metering. A standard 28-90mm lens will be used at all times except where wider or shorter angle lenses are required for longer elevation photography and detailed photography.
- 12.2 The camera will be placed at mid-height to the subject with due care and attention to lighting situations. Two shots will be taken of each feature, undertaken by a light-meter reading of a two-step change in aperture. This change up or down will depend on light conditions.
- 12.3 Interior photography will be undertaken with appropriate lighting conditions and the use of a tripod. Where light access is still quite minimal, an automatic flash will be used.
- 12.4 All photography will be taken on colour slide and black & white negative film, such as Kodak PLUS-X or Ilford FP4, or approved equivalent. It should be exposed and processed to an archival standard, i.e., fix and wash in accordance with the manufacturers specifications.
- 12.5 The use of a digital camera may be used as a reference to survey and drawn elevations and ground plans on-site.

#### **APPENDIX 13**

##### **Historic Building Recording: Rectified Photography and Photogrammetry (Level 3)**

- 13.1 An external contractor will carry out rectified photography and photogrammetry in compliance with the following guidelines:
- i)* All photography will be carried out with an approved type of camera. Details of the camera used may be supplied on completion of the project.
  - ii)* The smallest permissible photographic negative scale will normally be defined as follows: for 1:50 scale plotting, negative scale should be no more than 1:200 and for 1:20 scale plotting, negative scale should be no more than 1:200.
  - iii)* All rectified photography will be taken on black & white negative film, such as Kodak PLUS-X or Ilford FP4, or approved equivalent. It should be exposed and processed to an archival standard, i.e., fix and wash in accordance with the manufacturers specifications.

#### **APPENDIX 14**

##### **Historic Building Recording: Elevation Recording (Level 2)**

- 14.1 All elevations drawn or surveyed will be a 'preservation by record' of the current state of the building. The following categories will be recorded:
- i)* All architectural features with associated decorative detail including windows, doors, quoin stones, string courses, roof lines and other structural stonework and jointing.
  - ii)* Fixtures and fittings such as drainpipes and guttering, signs, brackets and vents.
  - iii)* Later modifications and/or damage to the building such as structural cracks, areas of erosion, patches of rendering, blocked doorways, windows and other openings.
- 14.2 Large or small repetitive features such as windows, capitals, mouldings, etc. sampling will be undertaken as appropriate.
- 14.3 Where the façade is of stone construction each individual stone may be recorded. However, in most instances, a representative area, usually 1m<sup>2</sup>, will be sufficient, although windows, corner stones and other architectural details will always be fully recorded. The degree of recording for ashlar will be depend upon the scale with which the elevation is to be produced and will be determined in advance of the start of works. When drawings are carried out at 1:50, a single line between the joints of the stone will normally be considered satisfactory. However, if there is a considerable gap between the stones, both sides of the stone will be shown. At a scale of 1:20 or larger, then all joints will normally be shown except where the stone is very fine ashlar.
- 14.4 Elevation recording by hand will normally take place if it is inappropriate to do so by survey. The size and complexity of an elevation will determine what on-site scale will be required. In general, a scale of 1:50 will be deemed appropriate with a larger scale adopted if portions of this elevation are more complex. For highly detailed architectural detail a scale of 1:1 may be appropriate.

- 14.5 All hand-drawn measured elevations and detail will be drawn using water-resistant paper with a hard 4H – 6H pencil. A levelled datum line will be taken through the centre of the elevation with offset measurements. All datum points will be accurately positioned within the site either by hand or by survey.

#### APPENDIX 15

##### Historic Building Recording: Elevation Recording – By Survey (Levels 2-4)

- 15.1 Where appropriate, elevations may be recorded by radiation survey using a reflectorless EDM (REDM) Leica TCR 705. This method of survey allows the accurate capture of data of upper floor levels. If more than one elevation is to be recorded, then a traverse will be created around each building or group of buildings. Extra stations may be set up in places where there is limited access. Values in the traverse will be adjusted by Bowditch adjustment to compensate for any errors in measurement. The adjusted values will then be calculated using LisCAD Plus v5.0 (Surveying and Engineering Module). Co-ordinates will be located by resection from existing traverse points. The survey data will be downloaded to a laptop computer on-site via Leica Office software. All measurements taken by survey will consist of three-dimensional co-ordinates relating to the Ordnance Survey National Grid.

- 15.2 The recording of an elevation will not be carried out by survey equipment if:

- i) There are too many obstructions;
- ii) The surface of the building is too dark or mossy;
- iii) There is too much curved architectural detail;
- iv) The distance required to set up the survey equipment in front of the elevation is too large (i.e., more than 25m) or too short to capture data from the upper levels of the elevation.

- 15.3 Where appropriate, elevations carried out by survey will be supplemented by detail measured by hand.

#### APPENDIX 16

##### Historic Building Recording: Interior Recording (Levels 2-4)

- 16.1 The recording of the interior(s) of the building(s) will consist of a written record and, where appropriate, measured sketch plans of the ground plan and the roof elevations based on the following guidelines:
- i) Critical analysis of the interior condition, construction, materials, fixtures and fittings will be made using *pro forma* recording sheets.
  - ii) Measured interior ground plans of each room of the interior will be carried out using tapes and a Leica Disto™ Classic electronic distance measurer.
  - iii) All measured plans will contain: notes on the size of structural members, and finishes; floor levels, change in levels, and ceiling heights; direction of stair rises in plan with each riser numbered; the positions of service entry points, plant and machinery and sanitary fittings; below-ground drainage; soil and vent stacks and rainwater pipes where appropriate.

#### APPENDIX 17

##### Historic Building Recording: Standard Report Illustrations (Level 6)

- 17.1 All final illustrations for archive will be produced digitally on the Computer-Aided Drawing package, AutoCAD 2000i/2000LT and/or Adobe Illustrator v9/v10. A standard methodology will be used with all drawings adhering to the following guidelines:
- 17.2 Line Weight. The appropriate line weight will depend on anticipated plot scale and may need editing if the output scale is to change. The degree of detail used will affect the line weight utilised in the finished drawing. All fine architectural detail (stonework, moulded stonework, brickwork, etc.) will be produced at a line weight of 0.05mm. More general architectural features (outlines of doors and windows, etc.) will be produced at a line weight of 0.09mm. A much heavier line will indicate the changing of plane in complex elevations.
- 17.3 Text. Text will be made clear and informative, with orientation, position, size and letter spacing remaining appropriate to the layout of the plotted sheets.
- 17.4 Scale. No archaeological or historic building survey will be carried out without a particular scale or range of scales in mind.
- 17.5 Layers. The layering system in Computer Aided Drawing packages allow the separation of data into specified criteria. To achieve this, there is an AOC standard layering system. This system is largely based on the coding system inherent in the use of the reflectorless EDM Leica TCR705.
- 17.6 Digital Archiving. All drawings are produced at a 1:1 scale for easy scaling in .dxf or .dwg format. At the end of a project, all data is stored on CD-ROM.

#### APPENDIX 18

##### Historic Building Recording: Dendrochronological Analysis (Level 3)

- 18.1 Dendrochronological analysis of timbers from standing building is primarily undertaken to provide accurate dates for its construction. Where appropriate, samples may be taken for analysis to provide information on the source and quality of the timber, thus informing on the social and economic context of the building.
- 18.2 Samples for analysis will take place under the following conditions:
- i) That the timber sample taken is from a species where date chronologies already exist, namely oak and pine.

- ii) A minimum of eight timbers per phase or building are required to cross-match results.
  - iii) The ring patterns inherent in a timber sample must be over a certain length, usually seventy rings.
- 18.3 The method of the removal of samples of timber will be to use a corer attached to a power-driven drill, removing a core leaving a hole in the timber 10mm in diameter. The core will be taken so that a maximum radius from pith to bark is taken, thus ensuring the maximum numbers of growth rings for analysis. Timbers will be selected which have retained a full ring sequence as possible (i.e., those where the outermost rings have not been trimmed off or destroyed by woodworm).
- 18.4 Where it is impossible to use this intrusive method of sample, for example, in the case of painted ceilings and carved panels, the ring sequence can be measured *in situ* using a hand lens. Silicone rubber casts can also be taken where the end grain is exposed.

#### APPENDIX 19

##### Historic Building Recording: Paint and Wallpaper Analysis (Level 3)

- 19.1 Paint and/or wallpaper analysis will usually only take place where layers that have been applied over the years have not been removed. Where appropriate, paint analysis can take place by methods of scraped samples or thin section analysis. Cross-sections may also be obtained from samples of paint to reveal a stratigraphy of paint layers.

#### APPENDIX 20

##### Historic Building Recording: Reporting (Levels 0-6)

- 20.1 The style and format of the final report on historic building recording works will be determined by AOC Archaeology, but will be compliant with Historic Scotland's issued guidance on Data Structure Reports. The content of this report will depend greatly in the level of works that have taken place but at minimum will include:
- i) A location plan of the site showing the areas under investigation numbered and cross-referenced in the text;
  - ii) A summary statement of the results;
  - iii) An introduction, methodology and results of the works;
  - iv) Photographic plates to illustrate the text.
- 20.2 Where a programme of historic building recording has taken place at Level 2 or above, the Data Structure Report will contain a number of illustrations, the format of which is outlined in more detail in Appendix 17.

#### APPENDIX 21

##### Watching Briefs

- 21.1 Where the archaeologist (Watching Brief Officer) has no remit over the working methodology of the site (specification of machine or depth of excavation). The Watching Brief Officer will simply observe the works and record their nature and form. Where the Watching Brief Officer specifies the site methodology, ie type of machine and depth of excavation. AOC Archaeology's preferred approach is to consider the Watching Brief Area as a large evaluation trench and follows in general, Appendix 7.
- 21.1 It is important to stress that the client determines the area affected and unless instructed by a curator the Watching Brief Officer has no power to extend the area unless it is to fully excavate a human body that otherwise would have been truncated by the works.
- 21.2 In addition to the general principles outlines in Appendix 7 the following approaches will be undertaken:
- i) a record will be made of all site attendances; in general a written and photographic record will be kept of the excavated sediments;
  - ii) where archaeological features are identified and they can be dealt with in less than two hours this work will be undertaken by the Watching Brief Officer. Recording and excavation protocols will follow Appendices 7.9 –7.11;
  - iii) where archaeological remains requiring more than two hours of excavation and recording, the Watching Brief Officer will stop the works and both the curator and the client will be contacted to devise a mitigation strategy. All delays will be kept to a minimum. Any resultant excavation and recording work will be in keeping with the methods outlined in Appendix 9;
  - iv) the extent of the watching brief area will not be recorded unless specifically required by either the client or the curator. Where such recording is required the area will be accurately recorded by total station and linked into the Ordnance Datum;
  - v) Reporting of Watching Briefs will follow methods specified in Appendix 8.

#### APPENDIX 22

##### General

- 22.1 The requirements of the Brief will be met in full where reasonably practicable .
- 22.2 Any significant variations to the proposed methodology will be discussed and agreed with the local authority's archaeological representative in advance of implementation.
- 22.3 The scope of fieldwork detailed in the main part of the Written Scheme of Investigation is aimed at meeting the aims of the project in a cost-effective manner. AOC Archaeology Group attempts to foresee all possible site-specific problems and make allowances for these. However there may on occasions be unusual circumstances which have not been included in the programme and costing. These can include;

- i) unavoidable delays due to extreme weather, vandalism, etc;
- ii) trenches requiring shoring or stepping, ground contamination, unknown services, poor ground conditions;
- iii) extensions to specified trenches or feature excavation sample sizes requested by the local authority's archaeological advisor;
- iv) complex structures or objects, including those in waterlogged conditions, requiring specialist removal.

**Health and Safety**

- 22.4 All relevant health and safety legislation, regulations and codes of practice will be respected.
- 22.5 With the introduction of the Construction, Design and Management Regulations 1994, AOC Archaeology works with Clients, Main Contractors, and Planning Supervisors to create a Health and Safety Plan. Where CDM regulations apply, each project will have its own unique plan.

**Insurances**

- 22.6 AOC Archaeology holds Employers Liability Insurance, Public Liability Insurance and Professional Indemnity Insurance. Details can be supplied on request.
- 22.7 AOC Archaeology will not be liable to indemnify the client against any compensation or damages for or with respect to;
- i) damage to crops being on the Area or Areas of Work (save in so far as possession has not been given to the Archaeological Contractor);
  - ii) the use or occupation of land (which has been provided by the Client) by the Project or for the purposes of completing the Project (including consequent loss of crops) or interference whether temporary or permanent with any right of way light air or other easement or quasi easement which are the unavoidable result of the Project in accordance with the Agreement;
  - iii) any other damage which is the unavoidable result of the Project in accordance with the Agreement;
  - iv) injuries or damage to persons or property resulting from any act or neglect or breach of statutory duty done or committed by the client or his agents servants or their contractors (not being employed by AOC Archaeology) or for or in respect of any claims demands proceedings damages costs charges and expenses in respect thereof or in relation thereto.
- 22.8 Where excavation has taken place evaluation trenches will be backfilled with excavated material but will otherwise not be reinstated unless other arrangements have previously been agreed. Open area excavations normally will not be backfilled but left in a secure manner unless otherwise agreed.

**Copyright and confidentiality**

- 22.9 AOC Archaeology will retain full copyright of any commissioned reports, tender documents or other project documents under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide an exclusive licence to the Client in all matters directly relating to the project as described in the Written Scheme of Investigation.
- 22.10 AOC Archaeology will assign copyright to the client upon written request but retains the right to be identified as the author of all project documentation and reports as defined in the Copyright, Designs and Patents Act 1988.
- 22.11 AOC Archaeology will advise the Client of any such materials supplied in the course of projects which are not AOC Archaeology's copyright.
- 22.12 AOC Archaeology undertake to respect all requirements for confidentiality about the Client's proposals provided that these are clearly stated. In addition AOC Archaeology further undertakes to keep confidential any conclusions about the likely implications of such proposals for the historic environment. It is expected that Clients respect AOC Archaeology's and the Institute of Field Archaeologists' general ethical obligations not to suppress significant archaeological data for an unreasonable period.

**Standards**

- 22.13 AOC Archaeology conforms to the standards of professional conduct outlined in the Institute of Field Archaeologists' Code of Conduct, the IFA Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology, the IFA Standards and Guidance for Desk Based Assessments, Field Evaluations etc., and the British Archaeologists and Developers Liaison Group Code of Practice.
- 22.14 Project Directors normally will be recognised in an appropriate Area of Competence by the Institute of Field Archaeologists.
- 22.15 Where practicable AOC Archaeology will liaise with local archaeological bodies (both professional and amateur) in order that information about particular sites is disseminated both ways (subject to client confidentiality).

**APPENDIX 23****Specialist staff**

The following specialist staff may be used on this project depending on the type of artefacts and soil samples recovered during the course of the fieldwork.

**AOC Archaeology Staff:**

Ms Lynne Roy	Soils and sediments analysis
Dr Anne Crone	Dendrochronology, charcoal and timber analysis
Dr Ciara Clarke	Pollen analysis
Mr Rob Engl	Lithics & coarse stone
Ms Melissa Melikian	Human bone

Ms Jackaline Robwertson	Macroplant specialist
Mr Alan Duffy	Charcoal identification
Ms Gretal Evans	Artefact conservation

**Sub-contractors:**

Mr Bob Clark	Industrial archaeology & coal-mining
Ms Marta McGlynn	Historic designed landscapes
Ms Jennifer Thoms	Vertebrate animal bone
Dr Ruby Ceron-Carasco	Marine shell and fish bone
Dr Ann MacSween	Prehistoric pottery
Ms Naomi Crowley	Building material, medieval and post-medieval pottery
Ms Amanda Clydesdale	Plaster, paint and wallpaper analysis

**APPENDIX 24****Post-excavation****24.1 Sample Flotation**

Sample flotation is a water recovery technique designed to separate organic remains from the soil matrix. A Siraf style system of flotation and wet-sieving will be operated by the archaeological contractor. This system comprises an enclosed area of water into which the soil samples are deposited and agitated. Due to the difference in densities of organic and inorganic remains the light fractions will float, the heavy fractions will sink and the silt fraction will be washed away. The resulting floating material (flot) is collected in sieves of 0.3 mm and 1 mm, the non-floating residue (retent) is wet-sieved through a 1 mm mesh.

All flots and retents are air dried, bagged and labelled accordingly. Throughout this process all equipment is kept clean to prevent contamination of the samples. For each sample, a Sieving Assessment sheet is completed. This gives basic information about the sample, retent and flot. Prior to flotation and wet-sieving, the volume of each sample is measured by means of a graduated bucket. If in a sample a high concentration of clay can be observed and therefore separation of the different fractions of the soil is difficult, an aqueous solution of defloculant 'Calgon' is added and the sample is left to soak overnight, before processing by flotation and wet-sieving.

Sample flotation will be carried out on site and/or at the premises of the archaeological contractor.

**24.2 Sample Wet sieving**

Sample wet sieving, also a water recovery technique, is carried out in laboratory conditions and is designed to recover waterlogged material. For the recovery of waterlogged botanical material, small soil samples (0.5 to 1.0 litre) are processed through a 0.3 mm sieve. The sediment is placed in a bucket with water and agitated before being washed through the 0.3 mm sieve. This process is repeated until the sample is totally disaggregated. The resulting material is stored in water or ethanol depending on the length of the storage period. Sample wet sieving can also be used to recover larger waterlogged material such as leather and wood in which case larger volumes of soil are processed.

**24.3 Sample Dry sieving**

Sample dry sieving is carried out to retrieve smaller artefacts that might be missed during normal excavation procedure, eg. small sherds of pottery and bone. Done in laboratory conditions, all samples are air dried in the first instance. Done in the field, the samples are processed with the sample in a field-moist state. In both cases the sample is passed through a 4 mm mesh and any items of interest are recovered and recorded.

**24.4 Residue sorting**

All residue (retent) sorting is carried out in laboratory conditions, and is designed to recover not only material that might be missed during normal excavation procedure (see dry sample sieving), but also material that would be impossible to recover during normal excavation procedure eg. charred and uncharred plant remains, insect remains and small fragments of charcoal.

The volume of the residue is recorded and then passed through a set of sieves (mesh sizes 8 mm, 4 mm, 2 mm and 1 mm). Each fraction is spread out onto a separate tray, is scanned with the naked eye and all items of interest are recovered. Under normal circumstances all identifiable material from all fractions is recovered. The only exception to this is burnt wood (charcoal) which is only retrieved from the > 4 mm fractions. All material recovered is bagged individually by material type and the material types and weights recorded on the Retent Sorting Sheet. Also recorded on this sheet are the project number, context number, area, sample number, the sorters initials, date, sample volume, retent volume and percent of the retent sorted. Under normal circumstances 100 % of all fractions are sorted. In those instances where this is not the case, this will be recorded. Where no material is recovered from a retent, the Retent Sorting Sheet will be filled out as usual, with the word sterile written across it.

**24.5 Flot sorting**

All flot sorting is carried out in laboratory conditions. The volume of each flot is measured. The flots are sorted by means of a low powered binocular microscope. The macro plant remains and other archaeological or ecological material are extracted from the flots

and put into gelatine capsules or glass tubes. An estimate of the number of items recovered and the species represented are recorded. The charcoal larger than 4mm is extracted from the flots and weighed. All extracted items are bagged and labelled accordingly.

#### 24.6 Routine Soils Analysis

All the samples taken on-site will have a routine partner. Four standard routine soil tests will be carried out by the archaeological contractor. These are pH analysis, Loss on Ignition, Calcium Carbonate content and Easily available phosphate content.

The pH value is the measure of the acidity (H+) or alkalinity (OH+) of the sample. Dissolving a portion of the soil in distilled water, then measuring the sample using pH meter carries this out. This is to allow us to estimate the potential for preservation within the sediment.

Loss on Ignition is the measure organic content of the sample. This is measured by burning a small amount of the sediment in a furnace at 400°C for four hours. By measuring the weight before and after burning the organic content can be calculated. The organic content allows us to examine whether manuring or treatment of the natural soil has taken place.

Calcium Carbonate content can be measured by dissolving a few grains of the sample using Hydrochloric acid. If calcium carbonate is present then a small amount of Carbon Dioxide is given off, the greater the amount of CO<sub>2</sub> released the greater the amount of CaCO<sub>3</sub>. The Calcium Carbonate content shows us if there is any natural calcium carbonate within the sediment, or if not, any mortar or shell has been included artificially.

The amount of phosphate within a sample is examined at the same time as CaCO<sub>3</sub>. After the CO<sub>2</sub> has been released Ascorbic acid is applied, if Phosphate is present a colour change will occur. The phosphate content may show the presence of animals or to a lesser degree indicate where animals were kept.

#### 24.7 Soil Micromorphological Analysis

Micromorphology is the study of undisturbed soils and loose sediments and other materials at a microscopic scale. A 25-30 micron thick slice of soil or sediment is mounted on glass and studied using a petrographic microscope. The samples are prepared for thin section analyses at the Department of Environmental Science, University of Stirling using the methods outlined by Murphy (1986). The samples are analysed using the descriptive terminology of Bullock *et al* (1985) and FitzPatrick (1993).

Bullock, P., Fedoroff, N., Jongerius, A., Stoops, G., Tursina, T. & Babel, U. 1985 *Handbook for soil thin section description*. Wolverhampton: Waine research Publications.

FitzPatrick, E.A. 1993. *Soil microscopy and micromorphology*. Chichester: John Wiley & Sons.

Murphy, C. P. 1986. *Thin section preparation of soils and sediments*. Berkhamsted: AB Academic Press.

#### 24.8 Charcoal ID

Only charcoal retrieved from the 4mm sieve (see Sieving and Sorting procedures) is used for species identification, mainly because fragments below that threshold are too small to identify. If there is no charcoal larger than 4mm present then attempts will be made to identify the largest fragments present for the purpose of C14 samples.

Surfaces are prepared for identification by using a surgical blade to prise off flakes of charcoal revealing fresh surfaces on which diagnostic features can be identified. The charcoal fragment is bedded in sand for examination under a reflected-light microscope.

On average, up to 10 fragments of charcoal are identified per bulk sample. If a single species is present then identification can stop at 5 fragments. However, if a great variety of species is present, ie more than four, then identification should continue until the analyst is happy that a representative sample has been examined. Unusual or exotic species should be bagged and labelled separately within the bulk sample.

Other variables, such as whether the fragment is young roundwood, with sub-bark surfaces intact, whether it has come from a large piece of wood and whether it is fast or slow grown, should be noted.

Species identification is undertaken with reference to Schweingruber's (1982)

#### 24.9 Wood ID

*Waterlogged wood*; Surfaces on waterlogged wood are prepared for identification by using a cut-throat razor or a double-sided razor blade to pare off thin-sections which are cell-thick and transparent so that diagnostic features can be identified. It is consequently difficult to identify fragments of waterlogged wood smaller than 10 mm<sup>2</sup>. The thin-sections are temporarily mounted in water on slides for examination under a transmitted-light microscope.

Sampling for identification is carried out on the same basis as that for charcoal. Species identification is undertaken with reference to Schweingruber's (1982) *Microscopic Wood Anatomy* and the in-house reference collection of the archaeological contractor.

#### 24.10 Non-charcoal charred plant macrofossil analysis and Waterlogged plant analysis

Analysis of the charred plant macrofossils and waterlogged plants involves identification, quantification and interpretation. Identification of the macro plant remains is done using a low power binocular microscope with x10 and x40 magnifications. The modern reference collection of the archaeological contractor and various seed atlases (Beijerinck 1947, Berggren 1969 & 1981 and Anderberg 1994) will be used to ease identification. The botanical nomenclature follows Flora Europaea (Tutin *et al* 1964-1981). A standardised counting method is used for quantification. Habitat information for the plant species will be taken from Hanf (1983).

#### 24.11 Dendrochronological analysis

*Sample size and species type*; Three conditions are necessary to ensure the successful dating of a building or archaeological site. The timber must be a species for which there are already dated chronologies which in the UK usually means oak. Cross-matching is a statistical process, and therefore a number of timbers are required, usually at least 8 per building or phase. Finally, and for the same

reasons the ring-patterns must be over a certain length, usually 70 rings. With these conditions observed it can be relatively straightforward to obtain a date for a building.

*On-site sampling; In situ* timbers in a standing building are usually sampled using a corer, which is attached to a power-driven drill and removes a core leaving a hole in the timber 10 mm in diameter. The core must be taken so that the maximum radius from pith to bark is sampled, thus ensuring the maximum number of growth-rings for analysis. It is also important to select those timbers which have retained as full a ring sequence as possible, ie those where the outermost rings have not been trimmed off or destroyed by woodworm.

Coring is an intrusive method of sampling and it is occasionally impossible to use this method, as in the case of painting ceilings and carved panels. If the end-grain is exposed the ring sequence can be measured *in situ* using a hand lens. Silicone rubber casts can also be taken.

If structural timbers have been removed during the renovation of a building then slices, approximately 50 mm thick can be sampled by saw, usually a chainsaw, from a point along the timber where the maximum radius survives.

Timbers only survive below ground in waterlogged conditions. Waterlogged timbers are sampled as above, by the removal of a 50 mm slice by sawing.

#### Sample preparation;

Cores are mounted in angle moulding and then the surface is prepared by paring with a Stanley knife followed by fine sanding with Wet&Dry sandpaper until the ring-pattern is clear and measurable.

*Slices (dry)*; The surface of the slice is sanded, usually with a power sander, using progressively finer sandpaper until the ring-pattern is clear and measurable. It is often necessary to finish off the surface with W&D sandpaper.

*Slices (wet)*; The slice is usually frozen for 24 hours and then the surface is planed flat using a Surform plane. This often achieves the necessary clarity of ring-pattern but where the wood is particularly hard it will be necessary to use a razor blade to pare the surface to achieve a clear ring-pattern.

*Silicone rubber casts*; These are fixed to battens of wood using silicone rubber, for ease of measurement.

*Measurement and analysis*; The samples are measured on a custom-made measuring table and the data logged onto the computer using DENDRO (Tyers 2000). Data graphing and statistical analysis are also carried out using the same package.

## APPENDIX 25

### Conservation

#### 25.1 Conservation principles

The principles, ethical codes and techniques of conservation are under constant review by both practitioners and professional bodies. The archaeological contractor's approach to conservation will reflect current theory and practice, as recommended by the United Kingdom Institute for Conservation, the Scottish Museums Council, Resources for Museums and Galleries, the International Council on Museums and the International Institute for Conservation.

#### 25.2 Security

The archaeological contractor will take all reasonable precautions to ensure the security of items brought in for conservation. The building will be protected by intruder detector systems; all conservation items will be kept in a secure locked store when not being worked on, and will not be left unattended. Particularly valuable items will be stored in a safe where required. A heat and smoke detection system will also be in operation 24 hours a day.

#### 25.3 Insurance

Artefacts for conservation will not be covered by the contents insurance of the archaeological contractor. Insurance cover can be arranged for individual items and collections, but this is expensive. Clients are normally advised that the cheapest option is to extend their own insurance for these items for a fixed period. If required, the archaeological contractor could arrange additional insurance, and these costs would be passed on.

The archaeological contractor will have full professional indemnity cover for all its staff.

#### 25.4 Health and safety

All relevant Health and Safety legislation, Regulations, Guidelines and Codes of Practice will be respected; Health and Safety plans will be compiled where Construction, Design and Management Regulations 1994 apply.

#### 25.5 Conservators and allied specialist services

*Professionalism*: The conservators of the archaeological contractor will be graduates of approved conservation courses, and will have a thorough knowledge of current conservation practices in their particular specialist fields. The conservators will have been actively encouraged to broaden their skills and experience, and to obtain professional accreditation through the United Kingdom Institute for Conservation or PACR.

#### 25.6 Specialist post-excavation analyses

Other services which the archaeological contractor will be able to offer are:

wood identification and woodworking analysis  
tree ring dating  
pollen analysis

	<ul style="list-style-type: none"> <li>building materials analysis</li> <li>metal artefacts</li> <li>metalworking and glass working debris</li> <li>materials analysis</li> <li>textile analysis</li> <li>insects</li> <li>fish and shells</li> <li>bird bones</li> <li>plant remains</li> <li>bone identification</li> <li>soils specialist/geologist</li> <li>artefact specialist</li> <li>fibre identification</li> <li>leather identification</li> </ul>
25.7	<p><i>Documentation</i></p> <p>Conservation complements the work of other professionals by preventing the deterioration of the artefact, and by ensuring that the wider community benefits from the additional information recovered about an artefact in the course of conservation work. Conservation reports are normally supplied as a hard copy, but can also be supplied on disc in a variety of formats, according to the client's requirements. Reports are normally printed on paper with a guaranteed life expectancy of 150 years; photographic materials are processed to professional industry standards such as Q-Lab.</p>
25.8	<p><i>Archival considerations</i></p> <p>The archaeological contractor will endeavour to ensure that the materials used to document artefacts undergoing treatment have a reasonable life span. Paper used will have an estimated lifetime of 150 years (HMSO specification), and all photographic films will be processed to industry standards by a processing company that specialises in high quality work for professional photographers. Radiography films and chemicals will be fresh and well within their expiry dates. All labelling of boxes etc. will be carried out with archival quality inks; labels will generally be duplicated for safety's sake.</p> <p>Wherever possible, the archaeological contractor will consider the archiving requirements for the site, and may consult the receiving museum or archive about their requirements; the archaeological contractor will follow guidelines proposed by the Association of Museum Archaeologists.</p> <p>The archaeological contractor will abide by current guidelines on the care and disposal of artefacts and human remains, as set out in:</p> <p><i>The Disposal and Allocation of Finds</i>  <i>Publication and Archiving of Archaeological Projects</i>  <i>Treatment of Human Remains in Archaeology</i>  <i>Archaeological Project Design, Implementation and Archiving</i></p>
25.9	<p><i>Museum of London Guidelines</i></p> <p>Museum of London requirements for conservation, recording, documentation, packing and archiving will be applied where these are a pre-condition.</p>
25.10	<p><i>Assessment and estimating</i></p> <p>The assessment determines the condition of the artefact and the best means to ensure its survival. Radiography (x-raying) of the object is normally carried out at an early stage, and is compulsory for iron objects, which have poor survival prospects, and for some copper alloy artefacts.</p> <p>The estimate for the work normally applies for six months; it may be necessary to review it thereafter. Conservation rates are agreed by negotiation.</p>
25.11	<p><i>Recording</i></p> <p>Text and image records (paper, digital and/or film as appropriate) will be made of all artefacts before conservation commences. Any information recovered during cleaning and conservation (eg associated material, residues, corrosion products, manufacturing techniques) will be carefully recorded, with samples taken where necessary. Soil removed from an artefact during the process will normally be retained and returned with the object, unless the excavator and/or client decides that it is not required. Where necessary, experts will be consulted on the nature of any material discovered during cleaning or conservation of artefacts. All samples and slides will become part of the site archive and remain with the artefact.</p> <p>The conservation report will also include recommendations for the care and curation of the assemblage; special finds with particular packing requirements will have clear handling and lifting instructions on the outside of any packaging.</p>
25.12	<p><i>Conservation Record</i></p> <p>The conservation assessment sets out the proposed treatments for each type of artefact or material: these treatments can be discussed with the client, and with the museum, to take into account any priorities and display requirements. (See Section 9, Assessment)</p>
25.13	<p><i>Radiography</i></p>

	<p>The archaeological contractor will x-ray all excavated iron objects, as well as some of the copper alloy, and any other items as requested by the excavator: information from the x-rays are incorporated into the conservation report. All metal artefacts can be x-rayed if required; only film and chemicals within their expiry date are used, washing periods are the optimum to maximise film preservation.</p> <p>X-rays normally become part of the archive, and are returned to the client, with full details of exposure time and voltages used.</p>
25.14	<p><i>Record photography</i></p> <p>All artefacts selected for conservation will be photographed (on colour slide film) at least once; usually before and after conservation, with a label and scale in the frame. Unusual artefacts, noteworthy features or modified conservation treatments will be photographed whenever appropriate.</p> <p>All images will be recorded in the conservation report, and each slide labelled with the context and find number. The archaeological contractor will use Professional grade film, and a professional developing service to ensure maximum film stability. The slides form part of the conservation archive, and will remain with the artefact.</p>
25.15	<p><i>On-site conservation and conservation on call</i></p> <p>A conservator can be available on site if required, and the conservators of the archaeological contractor can provide immediate advice over the phone at any time (specific arrangements must be made for out of hours working).</p> <p>Advice on packing, lifting and transporting artefacts may be given in the early stages of a project.</p>
25.16	<p><i>Conservation treatments</i></p> <p>The requirements of each artefact will be considered individually, and any remedial treatments carried out will use only recognised conservation treatments and approved materials. The archaeological contractor will be committed to CPD, which ensures that its conservation staff are fully cognisant with new developments in the field.</p>
25.17	<p><i>Post-excavation storage</i></p> <p>It is recognised that budgetary arrangements may mean considerable time can elapse between excavation and conservation or Finds Disposal. All finds will be examined by a conservator on receipt; packing and storage materials will be renewed as necessary, and the archaeological contractor will ensure that all finds will be kept in a secure, stable environment until conservation treatments begin. Any finds that require immediate treatment will undergo conservation as soon as the conservators have consulted the Project Field Officer. Large volume storage at 1 °C and -20 °C; and storage for waterlogged material will be available in-house.</p>
25.18	<p><i>Packing</i></p> <p>All artefacts will be packed in suitable inert materials, with silica gel if required. Fragile objects will be supported by Ethafoam, or similar, and lifting and handling instructions on the container. Especial care will be taken for artefacts, which will be going into long term storage. All containers will be carefully labelled, and box lists supplied.</p>
	<p><b>APPENDIX 26</b>  <b>Archiving and finds disposal</b></p>
26.1	<p><i>Finds disposal</i></p> <p>All artefacts and ecofacts recovered during an excavation sponsored by Historic Scotland (HS) are reported directly to HS via their own collections registrar. If all material has been fully analysed at this point, it is in most cases, transferred to an HS store. HS's Finds Disposal Panel (FDP) with permission of the Queen and Lord Treasurers Remembrancer (Q&amp;LTR) then allocates the material to the appropriate museum for long term storage and possible display.</p> <p>Artefacts and ecofacts recovered from excavations sponsored by other funding bodies are reported to the Crown via the Treasure Trove Advisory Panel (TTAP). The TTAP with permission of the Q&amp;LTR then allocates the material to the appropriate museum for long term storage and possible display. Once the material has been allocated, it is then the museum's responsibility to arrange collection from the archaeological contractor.</p>
26.2	<p><i>Archiving</i></p> <p>All archiving will be undertaken according to standards and guidelines set out by the National Monuments Record of Scotland (NMRS), located at the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS). The archives of all archaeological works will be deposited to the NMRS.</p>
	<p><b>APPENDIX 27</b>  <b>Publications</b></p>
27.1	<p><i>General</i></p> <p>All publications by the archaeological contractor will be clear, correct and concise accounts of what was done and will reach standards acceptable to the archaeological profession. Final reports will be published within five years of the end of fieldwork. Publications should be published in popular archaeological, general and specialist formats to inform a wide readership of what work was done and must be made available to both lay and professional audiences for the foreseeable future. Publications must also provide good value for money in terms of the content and style of the publications. In DES entries and journal publications the role of the client will be</p>

fully acknowledged. In the popular publications and monographs suggested below the role of the client will be more fully promoted, with the display of the client's logo on the cover and a foreword by their representative. The over-riding aim of the procedures outlined in this section is to ensure that, during the duration of the project, a continuous stream of information about the archaeological works is made available for peer review and public consumption. The following stages and publication vehicles are envisaged;

27.2 *DES entries*

After the completion of each piece of on-site work, whether it be a watching brief, evaluation, set-piece excavation or building recording exercise a Data Structure Report (DSR) will be produced (see Fieldwork procedures). These are not reports intended for publication but they usually include a short summary which will be submitted for publication in *Discovery and Excavation Scotland* (DES), an annual summary of fieldwork published by the Council for Scottish Archaeology. It is proposed that an individual entry for each piece of on-site work will not be submitted; rather a single entry summarising all the works carried out in any one year will be compiled by the Project Manager. The DES summary is a standard requirement of planning authority archaeologists and ensures that notice of ground-breaking works is disseminated throughout the archaeological community.

27.3 *Journal publications*

Reports on the results of excavations are normally published either as an article in an academic journal or as a monograph in an appropriate series, depending on the scale of the results. The results of the set-piece excavations will be published as journal articles with reference to other on-site works such as watching briefs and building recording, where appropriate. The publication of these articles will follow on timeously from the completion of post-excavation works.

27.4 *Monograph publications*


The results of all the on-site works will be drawn together in a single volume, a monograph designed primarily for academic consumption. This will be published within 5 years of the completion of on-site works.

27.5 *Popular publications*

The results of all the on-site works will also be drawn together in 'popular' publications that augment the academic publications in making the results available to a wider public. This is a method of providing 'community gain' to the local and national community in return for its consent, through the planning process, to alter or demolish elements of the archaeological heritage. Popular publications may include, as deemed appropriate by the client, Internet reports within the web site of the archaeological contractor, printed colour booklets, leaflets, on-site interpretative panels and exhibitions.

27.6 *Editorial procedures*

The archaeological contractor will apply their in-house editorial policy and procedures, through which any projects nominated for publication are normally submitted.



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# ES Volume II: Technical Appendices

## Appendix 11.1: Preliminary Ecological Appraisal

**Document Control**

Report Issue	Notes
01	Original document to client.
02	Amendment following initial client review
03	Added desk data and value to ecological features for EIA
05	
05	
06	
Managing Office	Derby

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## 1 Introduction

### 1.1 Terms of Reference

In May 2017 Prime Environment Limited (Prime Environment) was instructed by Trium Environmental Consulting LLP (the Client) to undertake a Preliminary Ecological Appraisal of OS Parcel 2200 adjoining Oxford Road, north of Promised Land Farm, Oxford Road, Bicester. (Ordnance Survey (OS) grid Reference SP 57958 21564) (The Site).

The Site is 12 hectares and comprises an arable field with rough grassland margins and hedgerows with trees. There is a ditch running across the Site in the west and dry and wet ditches at the field boundaries. The Survey Area is slightly larger than the Site (15 ha) as the Site does not include all of the field.

The project proposals are to develop the Site into a large business park with associated hard and soft landscaping. The application will be subject to a formal Environmental Impact Assessment (EIA).

### 1.2 Aims and Objectives

The aims of the study were to:

- Identify, describe and assess the value of any sensitive ecological receptors at the Site and the immediate surrounding area.
- Identify potential ecological impacts of development and suggest appropriate building constraints, outline mitigation and compensation measures.
- Identify whether significant impacts to ecological receptors is likely, and therefore whether ecology should be included in the EIA.
- Make recommendations for any necessary further survey work or licensing, as required.

Ecological information for the assessment was provided by an Extended Phase 1 Habitat Survey and desk study (ongoing).

## 2 Methodology

This survey and reporting was undertaken by Jo Pedder Bsc. hons. Jo is a full member of the Chartered Institute of Ecology and Environmental Management and has over 14 years' professional ecology experience. Jo was supported in the field survey by Jon Moore MSc BSc (Hons). Jon is a full member of the Chartered Institute of Ecology and Environmental Management and has over 7 years' professional ecology experience. Both surveyors are registered to use survey licences for bats and great crested newts.

### 2.1 Desk Study

Thames Valley Environmental Records Centre (TVERC) was contacted for records of protected species and sites of nature conservation value within a 2 km search area, centred on the Site.

In addition, Ordnance Survey maps and online aerial photos were used to provide site context and the online Multi Agency Geographical Information Centre<sup>1</sup> (MAGIC) was used to identify any internationally protected areas within 5 km of the Site. Planning applications for developments in the local area have also been searched to identify further data relevant to the Site. This has included an Environmental Statement for an approved application known as 'Land at Whitelands Farm' (06/00967/OUT) which included the Site in its ecological surveys and another consented application for a similar scheme at the Site 07/01106/OUT

### 2.2 Extended Phase 1 Habitat Survey

A Phase 1 Habitat Survey was undertaken at the Site on the 2<sup>nd</sup> May 2017 to identify and map the habitats present following published criteria<sup>2</sup>.

In addition to basic Phase 1 Habitat mapping, the Site was assessed to identify whether it includes any Habitats of Principal Importance (HPI) or is suitable to support Species of Principal Importance (SPI)<sup>3</sup>, or other notable or legally protected species.

### 2.3 Hedgerow Assessment

This report has been prepared to support a planning application, and therefore there is no legal requirement for undertaking a Hedgerow Regulations assessment; removal of hedgerows is considered permitted under the legislation if the removal is part of a planning consent. However, this is a useful tool for identifying features of value within a site. Each hedgerow within the Site was assessed against the ecology criteria for 'important' hedgerows following the method set out in The Hedgerow Regulations 1997. **The assessment did not include an historical assessment of the hedgerows, which should be considered separately.**

<sup>1</sup> <http://magic.defra.gov.uk/>

<sup>2</sup> JNCC (2010) *Handbook for Phase 1 habitat survey - a technique for environmental audit*

<sup>3</sup> HPI and SPI are habitats and species listed in Section 41 of the Natural Environment and Rural Communities Act 2006 and regarded as the highest conservation priorities in the UK. HPI and SPI are material consideration in planning.

## 2.4 Bat Tree Assessment

All trees within or adjacent to the Site (where access was possible) were assessed for their suitability to support roosting bats. Trees which could potentially support bats were subject to a detailed examination with binoculars. As there were a number of trees, and a plan with tree locations could not be provided at the time of the survey, individual trees were not assessed, but groups of trees supporting one or more specimens suitable for roosting bats were recorded.

## 2.5 Great Crested Newt Pond HSI

A Habitat Suitability Index<sup>4</sup> (HSI) score was calculated for two ponds adjacent to the Site.

The calculated HSI for a pond provides a score between 0 and 1. The pond's HSI can then be compared to the ranges of pond suitability, as shown in the table below. An inference can then be made between the HSI of a pond, and the likelihood of great crested newt presence.

**Table 1**  
**HSI scores and suitability of ponds for GCN**

HSI Score	Classification	Proportion of Ponds Occupied by Great Crested Newts
<0.5	Poor	0.03
0.5 – 0.59	below average	0.20
0.6 – 0.69	Average	0.55
0.7 – 0.79	Good	0.79
> 0.8	Excellent	0.93

## 2.6 Constraints

Any ecology assessment must be considered as a 'snapshot' of the site conditions at the time of the survey; not all botanical species or communities would have been evident during the survey.

Notwithstanding this, given the agriculturally managed nature of the Site, the findings of the survey are considered to provide an appropriate assessment of the Site's ecological value.

Ecological constraints will change over time and therefore the findings of this report is considered to be valid for a period of one year, after which the report should be reviewed to assess whether the survey should be updated.

<sup>4</sup> Oldham, R.S., Keeble, J., Swan, M.J.S., & Jeffcote, M. (2000) *Evaluating the Suitability of Habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10: 143-155.

### 3 Results

#### 3.1 Desk Study

Full TVERC data is presented in Appendix 3.

Only one statutory designated wildlife site occurs within the search area (2 km for local and national sites, 5 km for international sites): Bure Park Local Nature Reserve. The includes grass meadow, young broad-leaved woodland, hedges and scrub. A small river (the Bure) runs through the Site, feeding a small pond which is home to great crested newts. A balancing pond at one end of the Reserve is fed by run-off from the area. Bure Park is 1.8 km north of the Site, on the far side of Banbury.

Graven Hill Local Wildlife Site (LWS) is 1 km to the south east of the Site, is on a Ministry of Defence site close to Bicester. It caps a low rounded hill with oak and ash woodland.

Gavray Drive Meadows LWS (1.5 km north east of the Site) form a mosaic of small damp fields with ponds, divided by thick hedges with old trees. Great crested newt have been recorded.

Bicester Wetland Reserve, a Local Wildlife Site owned by Thames Water is 280 m south-east of the Site. The reserve includes scrapes, pools and ditches and is managed principally for wetland birds. Other local sites are likely to be identified in the desk-study.

The bird data is extensive as the search area includes a hide overlooking the Bicester Wetland Reserve, which is operated by the Banbury Ornithological Society.

Species records of relevance to the Site are in the following table (Latin names are in the desk study appendix).

Group / Species	Status	Reason for inclusion	Distance of nearest record (km)
<b>Invertebrates</b>			
Brown hairstreak (butterfly)	WACA-Sch5 NERC-S41	Life cycle includes blackthorn hedges	1.96
<b>Amphibians</b>			
Great crested newt	HabDir-A2np, HabDir-A4, HabReg-Sch2, WACA-Sch5, NERC-S41	Ponds in proximity to the site and potential to occur on site (limited habitat)	1.5
<b>Reptiles</b>			
Slow worm	WACA-Sch5-s9.1k/s9.5a/s9.5b	Potential to occur on site (limited habitat)	2.05
<b>Birds</b>			
Dunnock	Amber listed, NERC-S41	Potential to nest in hedges	0.56
Grey Wagtail	Amber listed	Potential to forage along stream at boundary	0.46
Kingfisher	Amber listed, Birds, Directive, WACA Sch1	Potential to forage along stream at boundary	0.47
Lapwing	NERC-S41, red listed	Potential to overwinter on arable	0.21
Linnet	NERC-S41 red listed	Potential to nest in hedges	0.56
Song thrush	NERC-S41 red listed	Potential to nest in hedges	0.56

Swallow	Amber listed	Potential to forage over site	0.46
Swift	Amber listed	Potential to forage over site	0.56
Skylark	NERC-S41, red listed	Potential to breed within arable habitat on site	1.01
House Martin	Amber listed	Potential to forage over site	0.46
Yellowhammer	NERC-S41, red listed	Potential to nest in hedges	0.88
Kestrel	Bird-Amber	Potential to forage over site	0.72
Red Kite	BirdsDir-A1, WACA-Sch1-p1, Amber listed	Potential to forage over site	0.72
Yellow Wagtail	NERC-S41, red listed	Potential to forage along stream at boundary	0.46
Bullfinch	NERC-S41, Amber listed	Potential to nest in hedges	1.92
Sand Martin	Amber listed	Potential to forage over site	0.46
Starling	NERC-S41, re listed	Potential to forage over site	0.72
Fieldfare	WACA-Sch1-p1, Red listed	Potential to forage over site in winter (Winter visitor only)	0.72
<b>Mammals</b>			
Badger	Badgers-1992	Potential to occur on site	1.86
Otter	HabDir-A2np, HabDir-A4, HabReg-Sch2, WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b, NERC-S41	Potential to pass along stream next to site	0.38
Common Pipistrelle	HabDir-A4, HabReg-Sch2, WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	Potential to forage over site and roost in trees	0.5
Long-eared Bat species	HabDir-A4, HabReg-Sch2, WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b, NERC-S41	Potential to forage over site and roost in trees	0.79
Noctule Bat	HabDir-A4, HabReg-Sch2, WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b, NERC-S41	Potential to forage over site and roost in trees	1.01
Soprano Pipistrelle	HabDir-A4, HabReg-Sch2, WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b, NERC-S41	Potential to forage over site and roost in trees	1.72
<p><b>EC Directive 79/409/EEC on the Conservation of Wild Birds</b> BirdsDir-A1 - Species listed on Annex 1</p> <p><b>EC Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora.</b> HabDir-A2, HabDir-A4 &amp; HabDir-A5 - Annex 2 and Annexes 4/5 respectively of the EC Habitats Directive.</p> <p><b>Wildlife and Countryside Act (WACA) 1981 (as amended)</b> Sch1(pt 1) – There are additional penalties for offences relating to birds on this schedule and it is also an offence to disturb such birds at the nest or with dependent young. Schedule 5 Wild Animals which receive some protection (subsections Sch5_ssect9.1 – covers intent intentional killing injuring or taking (species are covered by all or some of these) Sch5_ssect9.2 – Covers possession or control (live or dead animal, part or derivative) Sch5_ssect9.4a – Covers damage to or destruction of any structure or place used by a scheduled animal for shelter or protection. Sch5_ssect9.4b – Covers disturbance of animal occupying such a structure or place. Sch5_ssect9.4c – Covers obstruction of access to any structure or place which any such animal uses for shelter or protection Sch5_ssect9.5a – Covers selling, offering for sale, possessing or transporting for the purpose</p>			

of sale (live or dead animal, part or derivative).  
Sch5\_sect9.5b – Covers advertising for buying or selling such things.

**Birds of Conservation Concern list**  
These lists were drawn up by leading governmental and non-governmental conservation organizations including the RSPB and British Trust for Ornithology.  
Red List species are those that are globally threatened, whose population or range has declined rapidly in recent years (i.e. by more than 50% in 25 years), or which have declined historically and not recovered.  
Amber List species are those whose population or range has declined moderately in recent years (by more than 25% but less than 50% in 25 years), those whose population has declined historically but recovered recently, rare breeders (fewer than 300 pairs), those with internationally important populations in the UK

### 3.2 Surrounding Area

The Site is situated within a mixed landscape. To the immediate north of the Site is a new supermarket, beyond which is the town of Bicester. To the south there is a shopping complex including a garden centre and to the south east is a water treatment works (and the wetland reserve). Further south east are pasture fields and a military base. To the west of the Site is a large new housing development mostly on former arable fields.

Plate 1, an aerial photograph of the Site, shows the Site in context with the surrounding landscape. Note that this landscape has changed since the image was taken and does not include the housing estate to the west or the supermarket to the north.

**Plate 1**  
**Aerial Photograph**



### 3.3 Site Habitats

The Site is approximately 12 ha and largely comprises an arable field which was seeded with grass for hay or silage at the time of survey. There is one habitat within the Site which is a species of principal importance - hedgerows.

The Site comprises:

- An arable field.
- Arable margins.
- Hedgerows.
- Trees.
- Ditches.
- Log piles.

A list of all species recorded with their Latin names is included in Appendix 2 (Table 3) and a Phase 1 Habitat Plan in Appendix 4.

#### 3.3.1 Improved grassland

**Phase 1 Habitat Survey type:** Arable

**Habitat of Principal Importance (HPI) present:** No.

**Management:** regular agricultural management.

The majority of the Site is an arable field. At the time of the survey it was under a grass crop (principally perennial rye-grass).

There were few forbs recorded within the sward, except at the margins (see below).

Part of the Site (in the south-west) can be seen on aerial photos as a rough grassland, but this has been incorporated into the arable field.

**Plate 2**  
**Semi-improved grassland**



### 3.3.2 Field margins

**Phase 1 Habitat survey type:** Poor semi-improved grassland.

**HPI:** No.

**Management:** Annual mowing, probable spraying.

The grass field margins are approximately 2 m wide in the north east and south west of the site, but almost absent from the south (along hedgerow 3 and 4). The field margins do not qualify as the Habitat of Principal Importance 'arable field margins' as they are not deliberately created and managed for wildlife.

The grassland is dominated by meadow fescue and includes a range of common flowering species such as lesser burdock, spear thistle and cleavers. The margins of the area recently taken into arable management is more diverse and includes species associated with woodlands and hedgerows such as Lords-and-Ladies and cow parsley. In the north east of the Site the margins include an unusual amount of comfrey.

**Plate 3**  
**Arable margin**



### 3.3.3 Hedgerows

**Phase 1 Habitat survey type:** species rich and species poor intact hedgerows and species poor defunct hedgerows.

**HPI:** Yes.

**Management:** mixed.

Most of the field boundaries with shrubs are no longer managed as hedgerows and could be considered to be tree lines. Most are species poor, but one (Hedgerow 4) has five woody hedge species and a further three as taller standard trees. Under "woody species and associated features" this hedge qualifies as important under the hedgerow regulations.

Details of the hedges are included in Appendix 2, Table 5 and 6.

### 3.3.4 Trees

**Phase 1 Habitat Survey type:** Scattered trees

**HPI:** No.

**Management:** None.

Within the Site are tree lines formed of former hedgerows and standard trees in hedges. Trees and tree groups are described in more detail in Appendix 2, Table 5.

Some of these are suitable for roosting bats, such as the pollarded willow pictured, which has a large hollow at the base, creating a cavity.

**Plate 4**  
**Hedgerow 4**



**Plate 5**  
**Willow (G4)**



### 3.3.5 Ditches

**Phase 1 Habitat Survey type:** Running water, swamp and marginal vegetation.

**HPI:** yes (swamp).

**Management:** Varied.

Ditches 1 and 2 include patches of standing water and wet mud. At the juncture of Ditch 2 and D3 is a stream (off site). Ditch 1 is the most biodiverse area of the Site.

Aquatic and semi-aquatic vegetation within the ditches includes water-crowfoot, water-plantain, water-starwort, common duckweed and brooklime. Hard rush, marsh horsetail and bulrush were recorded in dryer areas.

The bankside vegetation includes creeping bent, lords-and-ladies, white bryony and rosebay willowherb.

Ditch 1 has historically been tree-lined, but was cleared when the arable field was extended.

### 3.3.6 Log pile

**Phase 1 Habitat Survey type:** n/a

**HPI:** No.

**Management:** N/A

Two large piles of wood, which appear to comprise trees felled from clearance of bank side vegetation.



Plate 6  
Ditch



Plate 7  
Log pile

### 3.3.7 Bare or disturbed ground and earth banks

**Phase 1 Habitat Survey type:** spoil, bare ground

**HPI:** No.

**Management:** N/A

There is a spoil heap in the north west of the Site and an earth bank that forms a boundary between the new supermarket and the Site.

The banks are likely to have been grass seeded, but also include colonising species present in the spoil heap and disturbed areas such as cleavers and bristly oxtongue as well as wild mignonette, white campion and charlock.



Plate 8  
Spoil heap



### 3.4 Species

#### 3.4.1 Invertebrates

**Protected / Species of Principal Importance (SPI):** some are, but unlikely to be present.

The Site's terrestrial habitats are common and widespread, with the agricultural crop believed to be subject to regular herbicide and pesticide spraying. They are therefore unlikely to support species or a range of invertebrate fauna which is of conservation importance.

#### 3.4.2 Amphibians

**Protected / SPI:** Some are, and may be present.

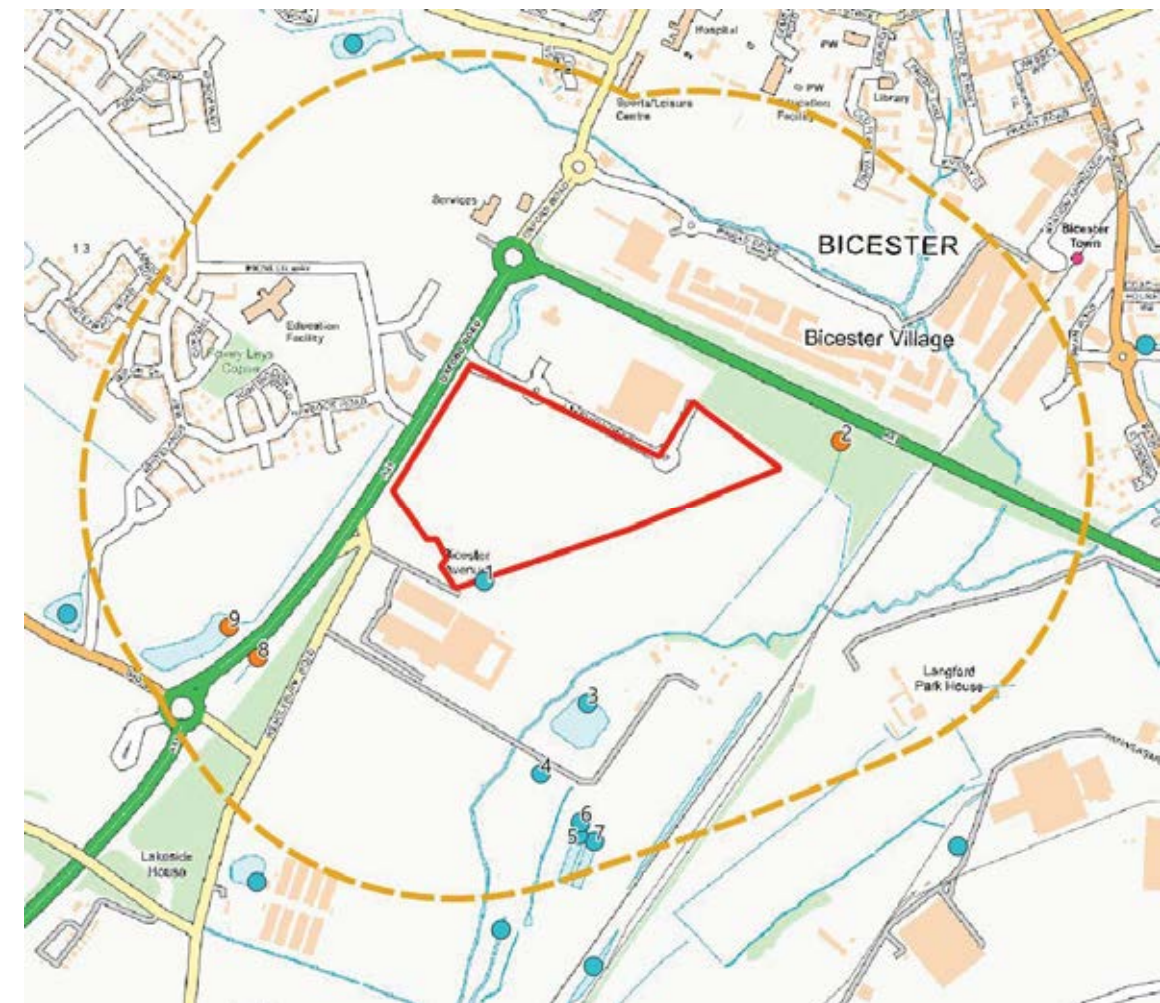
Great crested newts are a European Protected Species (EPS). The newts can travel some distance from their breeding pond. It is best practice to consider whether ponds within 500 m of a development site may support a breeding population of newts, in order to assess the likely risk of harm to newts if they occur on terrestrial habitat at the Site.

Ordnance survey mapping, aerial photos and the site visit were used to identify the presence of ponds within 500 m of the Site. Nine ponds were located (See Plan 1 below).

Pond 1 is immediately adjacent to the Site, it is located within the garden centre and its overflow feeds Ditch 1. Pond 1 scores 0.79 in the HSI (good quality for great crested newts). Pond 2 is a water attenuation pond in an unmanaged field north of the Site. The pond was dry at the time of survey and appears to rarely hold water (based on the vegetation growing within it). Ponds 3,5,6 and 7 are part of the water treatment processes at the Thames Water site. These were not viewed for this survey, but are unlikely to be suitable for newts. Pond 4 is a series of connected ditches and scrapes at the Bicester Wetland Nature Reserve. This feature was not surveyed fully, but observed by binoculars. It has a HSI score of 0.53 (below average quality for great crested newts. Ponds 8 and 9 are new attenuation ponds associated with the development to the west; the former is for road runoff from the new road access and the latter appears to be in what will be public open space. Neither held water at the time of survey, although Pond 9 does have emergent plants indicating it is wet or at least damp for some of the year. HSI data is included in Appendix 2, Table 4.

The HSI survey was undertaken at a time of year when newts lay eggs, but none were observed during the survey.

#### Plan 1 Pond Locations



#### 3.4.3 Reptiles

**Protected / SPI:** Yes and possibly present.

The Site's rough field margins and hedgerows are suitable for common lizard *Zootoca vivipara* and slow worm *Anguis fragilis*. All British reptiles are protected from killing or injury (but their habitat is not specially protected) and are SPI. The majority of the Site (the crop) is considered to be of very limited value to reptiles due to the monoculture of the field and lack of basking areas. It is possible that some reptiles are present in the rough vegetation at the boundaries and the log piles, however, it is considered unlikely that there is a significant population present.

The Site may therefore support a small population of common lizard and/or slow worm. Grass snakes may hunt within the Site as part of a much wider home range.

#### 3.4.4 Birds

**Protected / SPI:** Some are, and are likely to be present.

The hedgerows and trees provide opportunities for birds to nest on the Site. As well as more common birds, several skylark *Alauda arvensis* were also observed singing above the Site – based on the observations during the survey there may be up to four active nests. A single song thrush *Turdus philomelos* was also recorded.

Whilst some red and amber list species are present on Site, the breeding assemblage is not likely to be anything other than typical of the habitats present in the geographic location.

#### **3.4.5 Dormouse**

**Protected / SPI:** Unlikely to be present.

Dormice are protected under international legislation. They inhabit hedges, woodland, scrub and sometimes ruderal vegetation. Although the Site includes some of these habitats, typically the species is found in areas of extensive woodland. The Site is poorly connected to woodland and it is considered that dormouse are unlikely to occur at the Site.

#### **3.4.6 Badgers**

**Protected / SPI:** Yes.

A number of rabbit warrens were recorded around the Site, under hedgerows. A single larger mammal hole was also recorded. The spoil contained rabbit fur and droppings, and there were rabbit droppings in the entrance. However, the entrance tunnel was of a size and shape typical of badgers. It is possible that this is an outlier sett that is not currently occupied by badgers.

No further evidence of badger was observed on the Site or within 30 m of the Site boundary.

#### **3.4.7 Riparian mammals**

The Site's ditches do not hold sufficient water to support a water vole population. Although dry ditches may be used by otters moving between rivers or to foraging areas, the Site is not between major river systems. Otters have been recorded at the Bicester Wetland Reserve, and may access this via the stream south east of the Survey Area, but otters and water vole are unlikely to occur at or adjacent to the Site.

#### **3.4.8 Bats**

**Protected / SPI:** Possible roosting and foraging.

##### Foraging and commuting

Although the main body of the Site will be of limited value to bats, the hedgerows and trees are likely to be used by a number of foraging bats. Bat are also likely to use the Site as a route to move across the landscape, for example between roosts in Bicester and foraging at the Bicester Wetland Reserve. The Site is considered to be of medium value to bats according to Bat Conservation Trust classification (Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water – see Appendix 2, Table 2.)

##### Roosting

##### Trees

A number of trees were recorded that are suitable for roosting bats (see Appendix 2). These include individual trees on most of the site boundaries.

## 4 Assessment

Relevant legislation and national planning policy is provided in Appendix 1.

### 4.1 Development Proposals and Possible Impacts

The proposals are to develop the Site into business centre with 11 office blocks, a lake and associated car parking.

Vehicle access to the Site will be made from existing access points constructed with the new supermarket; all boundary hedges and trees can be retained within the scheme.

All of the Site's arable land and arable margins are likely to be removed.

The proposals include the creation of a new lake.

### 4.2 Potential Effects for Consideration

The following section will address what is relevant for consideration within the forthcoming Environmental Impact Assessment.

The Site as a whole is not of sufficient intrinsic ecological value to warrant whole-scale protection from development; the majority of the Site's habitats which will be affected by the proposal are common and widespread and are considered to be of low intrinsic biodiversity value.

Features requiring some level of further consideration, which may lead to a requirement for mitigation or compensation, are:

- The Bicester Wetland Nature Reserve
- Ditches
- Great crested newts
- Reptiles
- Birds
- Bats
- Badgers

#### 4.2.1 Bicester Wetland Nature Reserve

The EIA will need to consider whether the reserve is hydrologically connected to the Site and therefore whether additional measures will be required during construction and operation to ensure that it is not impacted e.g. through pollution.

#### 4.2.2 Habitat Loss

The proposed construction on the Site will lead to the loss of Ditch 1, which supports a number of wetland plants. The EIA will need to assess whether this loss is significant and if habitat improvements within the scheme offset this loss.

### 4.2.3 Great Crested Newts

If great crested newts breed in ponds and ditches close to the Site, the proposed works will lead to a loss in terrestrial and breeding habitat (the southern ditch) for great crested newts.

Ponds local to the Site do not appear to have been directly surveyed for great crested newts. Although a Site based terrestrial survey was undertaken in 2006, this is out of date and further surveys will be required to establish whether those ponds and ditches within 250 m support a crested newt population. The survey season for full pond surveys is mid-March to mid-June, with half of the visits between mid-April and mid-May. This will not be feasible this season, and so an eDNA survey will be more appropriate. This can be undertaken to the end of June, but will only provide a present or absent result, not the size of any population detected.

As the majority of the terrestrial newt habitat within the Site is of low value to newts and a reasonable area is available for mitigation (in undevelopable flood plain) a comprehensive mitigation plan can be put together based on the presence / absence result by making an assumption that there is a large population present, and basing mitigation on this. Loss of breeding Sites and terrestrial habitat could be compensated for within the Site's landscaping scheme or an off-Site receptor could be used to receive newts from the Site. Natural England's new policies on licence applications have changed the way in which mitigation for newts is considered; the approach is more flexible, allows for data to be accepted that doesn't strictly meet best practice in some cases and is more accepting of off-site solutions.

Of most relevant is Policy 4 – 'Appropriate and relevant surveys where the impacts of development can be confidently predicted'

*Natural England will be expected to ensure that licensing decisions are properly supported by survey information, taking into account industry standards and guidelines. It may, however, accept a lower than standard survey effort where: the costs or delays associated with carrying out standard survey requirements would be disproportionate to the additional certainty that it would bring; the ecological impacts of development can be predicted with sufficient certainty; and mitigation or compensation will ensure that the licensed activity does not detrimentally affect the conservation status of the local population of any EPS.*

It would seem reasonable that the ES for an outline application at the site can therefore be based on the results of eDNA surveys, which would be followed up by further survey (if necessary) prior to reserved matters.

#### 4.2.4 Reptiles

Reptiles may be present at the Site. However, the areas of habitat in which they may be found is limited. The EIA should address impacts to reptiles, but it would be reasonable to assume that a small population is present, rather than undertake surveys for this species.

#### 4.2.5 Birds

The EIA will need to address impacts to birds, and specifically skylarks – the only notable species which is likely to suffer habitat loss as part of the project. A survey to better quantify the number of skylark territories would aid the assessment, however the field observations made during the phase 1 survey are appropriate to state that the site supports up to three breeding territories.

#### 4.2.6 Badgers

The loss of the possible single outlier sett will not be significant to the local badger population; however badger setts are legally protected and further consideration for mitigation and licencing will be required.

#### 4.2.7 Bats

Although trees containing bat roosts are unlikely to be felled, indirect effects may occur due to habitat loss, disruption of commuting routes and lighting.

In order to assess the impact of the scheme, further surveys to quantify bats' use of the Site for commuting and foraging should be undertaken (activity surveys). Where trees are at risk of more direct effects, such as lighting, more detailed tree surveys should be completed.

Following best practice, activity surveys would comprise identifying two transect routes which are walked with bat detectors once per month through the active season. In this case we would undertake surveys between May and September, including one dusk and pre-dawn survey. At each survey period four static bat detectors would be left in suitable locations to record bat activity over at least five continuous nights. After the first three sets of surveys are undertaken, we will review the activity recorded and re-assess whether a whole year's survey is required for this assessment – by then the scheme design will have been further developed, and impacts to bats may have been designed out of the scheme, or we may have demonstrated that the Site is not important for bats.

Tree surveys would involve assessing where impacts to bats are most likely and targeting trees in these areas with a more detailed ground based inspection and, where appropriate, climbing the trees to closely assess features for evidence of bats.

## Appendix 1 - Relevant English Legislation, Policy and Guidance<sup>5</sup>

### Legislation

The Natural Environment & Rural Communities (NERC) Act 2006 places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.

### Common Reptiles

In Britain there are four relatively widespread native species of reptile - adder, grass snake, common lizard and slow worm. These species are protected via part of Section 9(1) of the Wildlife & Countryside Act 1981 (as amended) against:

- Intentional killing and injuring
- Selling, offering or exposing for sale.

### Nesting Birds

All wild bird nests are protected under The Wildlife and Countryside Act 1981 (as amended), making it an offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 of the Act, or its dependent young while it is nesting.

### Great Crested Newts

Great crested newts are 'European Protected Species (EPS) and are protected under the Conservation of Habitats and Species Regulations 2010, and the Wildlife and Countryside Act 1981, as amended by the Countryside & Rights of Way Act 2000. These pieces of legislation combine to give substantial protection to great crested newts and their breeding ponds and terrestrial habitat, making it an offence to:

- Deliberately capture, injure or kill a great crested newt.
- Intentionally or recklessly disturb<sup>6</sup> a great crested newt in a structure or place that they use for shelter or protection or deliberately disturb a group of a great crested newts.
- Damage or destroy a great crested newt resting place/shelter (even if they are not occupying it at the time).
- Possess or advertise/sell/exchange a great crested newt (dead or alive) or any part of a great crested newt (including eggs and all lifestages).

<sup>5</sup> This legal information is an outline only and intended for general information only. Consult the original legal documents and/or seek legal advice for definitive information.

<sup>6</sup> Disturbance, includes 'in particular any action which impairs the ability of animals to survive, breed, rear their young, hibernate or migrate (where relevant); or which affects significantly the local distribution or abundance of the species'.

- Intentionally or recklessly obstruct access to a great crested newt resting place/shelter.

The Natural Environment & Rural Communities (NERC) Act 2006 places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.

### **Bats**

All species of bat in Britain are 'European Protected Species' (EPS) and are protected under the Conservation of Habitats and Species Regulations 2010, and the Wildlife and Countryside Act 1981, as amended by the Countryside & Rights of Way Act 2000. These pieces of legislation combine to give substantial protection to EPS and their habitats, making it an offence to:

- Deliberately capture, injure or kill a bat.
- Intentionally or recklessly disturb<sup>7</sup> a bat in its roost or deliberately disturb a group of bats.
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time).
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat.
- Intentionally or recklessly obstruct access to a bat roost.

The Natural Environment & Rural Communities (NERC) Act 2006 places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.

### **Badgers**

Badgers are protected in the UK under the Protection of Badgers Act (1992), making it an offence to:

- Kill, injure or take a badger;
- Intentionally or recklessly interfere with a badger sett.

Sett interference includes damaging, destroying or obstructing access to a sett and disturbing badgers while they occupy a sett.

### **Policy**

#### ***National Planning Policy Framework (NPPF)***

The National Planning Policy Framework (NPPF) states that the planning system should contribute to and enhance the natural and local environment by:

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<sup>7</sup> Disturbance, includes 'in particular any action which impairs the ability of animals to survive, breed, rear their young, hibernate or migrate (where relevant); or which affects significantly the local distribution or abundance of the species'.

- Recognising the wider benefits of ecosystem services.
- Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

Other key principles of the NPPF relating to biodiversity are:

- The conservation of International and National statutorily designated sites.
- Protection of ancient woodland and veteran trees.
- The creation, protection, enhancement and management of networks of biodiversity and green infrastructure.
- The preservation, restoration and recreation of priority habitats and ecological networks.
- The recovery of priority species populations.

#### ***Habitats and species of principal importance***

The NERC Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list replaces the UK Biodiversity Action Plans (UKBAP) and has been drawn up in consultation with Natural England, as required by the Act.

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

#### Habitats of principal importance

Fifty-six habitats of principal importance (HPI) are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. Of most relevance to the Site, they include ponds, open mosaic habitats on previously developed land and lowland heathland.

#### Species of principal importance

There are 943 species of principal importance (SPI) included on the S41 list. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework.

**Table 2  
BCT Roost Assessment Criteria<sup>8</sup>**

<i>Suitability</i>	<i>Description of Roosting habitats</i>	<i>Commuting and foraging habitats</i>
Negligible	Negligible habitat features on site likely to be used roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by another habitat.  Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat, but unlikely to support a roost of high conservation status <sup>9</sup> .	Continuous habitat connected with the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions' and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

<sup>8</sup> From Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3<sup>rd</sup> edn). The Bat Conservation Trust, London

<sup>9</sup> With respect to roost type only - the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed.

**Appendix 2 – Survey Data**

**Table 3  
Botanical Species List**

latin		Field Boundaries	Grassland	Ditches	Bare Ground / Disturbed
<i>Agrostis stolonifera</i>	Creeping Bent			R	
<i>Alisma plantago-aquatica</i>	Water-plantain			R	
<i>Anisantha sterilis</i>	Barren Brome	LD			
<i>Anthriscus sylvestris</i>	Cow Parsley	LD			
<i>Arctium minus</i>	Lesser Burdock	R			O
<i>Arrhenatherum elatius</i>	False Oat-grass	LD			
<i>Arum maculatum</i>	Lords-and-Ladies	O	R	R	
<i>Bromus hordeaceus</i>	Soft-brome	F			
<i>Bryonia dioica</i>	White Bryony			R	
<i>Callitriche sp.</i>	Water-starwort			LD	
<i>Cerastium fontanum</i>	Common Mouse-ear				R
<i>Chamerion angustifolium</i>	Rosebay Willowherb			R	
<i>Cirsium vulgare</i>	Spear Thistle	R		R	R
<i>Dactylis glomerata</i>	Cock's-foot	O			
<i>Elytrigia repens</i>	Common Couch	O			
<i>Equisetum palustre</i>	Marsh Horsetail			O	
<i>Festuca pratensis</i>	Meadow Fescue	O			
<i>Galium aparine</i>	Cleavers	O			R
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	O			R
<i>Holcus lanatus</i>	Yorkshire-fog	F			
<i>Juncus inflexus</i>	Hard Rush			R	
<i>Lamium album</i>	White Dead-nettle	O			R
<i>Lemna minor</i>	Common Duckweed			R	
<i>Lolium perenne</i>	Perennial Rye-grass	A	D	O	
<i>Myosotis arvensis</i>	Field Forget-me-not	O			R
<i>Picris echioides</i>	Bristly Oxtongue	R		R	R
<i>Plantago major</i>	Greater Plantain				R
<i>Poa pratensis</i>	Smooth Meadow-grass			F	O
<i>Poa trivialis</i>	Rough Meadow-grass		F		
<i>Poa trivialis</i>	Rough Meadow-grass				
<i>Ranunculus ficaria</i>	Lesser Celandine			R	
<i>Ranunculus repens</i>	Creeping Buttercup	O		R	

<i>Ranunculus sp.</i>	Water-crowfoot			LD	
<i>Reseda lutea</i>	Wild Mignonette				R
<i>Rorippa nasturtium-aquaticum</i>	Water-cress			LD	
<i>Sambucus nigra</i>	Elder			R	
<i>Silene latifolia</i>	White Campion				R
<i>Sinapis arvensis</i>	Charlock				R
<i>Sisymbrium officinale</i>	Hedge Mustard	O			A
<i>Stachys arvensis</i>	Field Woundwort	R			
<i>Symphytum officinale</i>	Common Comfrey	R			
<i>Taraxacum officinale</i>	Dandelion				R
<i>Tussilago farfara</i>	Colt's-foot				R
<i>Typha sp.</i>	Bulrush			LD	
<i>Urtica dioica</i>	Common Nettle	LD	R		R
<i>Veronica beccabunga</i>	Brooklime			R	
<i>Veronica persica</i>	Common field speedwell				
DAFOR scale	Dominant, Abundant, Frequent, Occasional, Rare (L = locally)				

**Table 4  
Pond HSI**

Pond ref	Pond 1	Pond 4
S11 - Location	1.00	1.00
S12 - Pond area	0.90	0.94
S13 - Pond drying	0.90	0.50
S14 - Water quality	1.00	1.00
S14 - Shade	1.00	1.00
S16 - Fowl	0.67	0.01
S17 - Fish	0.67	0.67
S18 - Ponds	1.00	1.00
S19 – Terrestrial habitat	0.67	1.00
S110 - Macrophytes	0.41	1.00
HSI	0.79	0.56
	Good	Below average

**Table 5  
Hedgerow and Tree Group Descriptions**

ID	Species	Tree Age	Bat roost features present	Bat roost suitability <sup>10</sup>	Comments
G1	Elmus sp., hawthorn, sycamore, ash, salix sp., field maple	Immature	Ivy only	N to L	Opportunities for single bats behind thick stemmed ivy.
H1	Elmus sp., hawthorn, blackthorn, elder	-	-	-	Managed. Two parallel hedges. Gappy with new planting in gaps.
H1 standards	Ash	Early mature	Ivy only	1 x N, 1 x L	Two hedgerow standards. Opportunities for single bats behind thick stemmed ivy.
H2	Hawthorn, elder, goat willow	-	-	-	Unmanaged hedgerow.
H2 standards	Oak	Mature to over mature	Splits, wound holes	M to H	Upper canopies not inspectable due to foliage.
B1	Soil bund (see Jo's results)	-	-	-	Vegetated soil bund. Managed (sprayed and strimmed) on aspect facing Tesco. Weeds and grasses on aspect facing site.
G2	White or crack willow, goat willow, ash, elder, hawthorn, Prunus sp., field maple	Immature to early mature	Wound holes	N to L	Wound holes in older trees for single bats.
G3	White or crack willow, goat willow, hawthorn, elder	Immature to early mature	None	N	Multiple groups of trees beside drain.
H3	Blackthorn, hawthorn, elder	-	-	-	Unmanaged hedgerow. No standards.
H4	Hawthorn, elder, crab apple, blackthorn, ash	-	-	-	Unmanaged hedgerow.

<sup>10</sup> Bat roost suitability: N=negligible, L=low, M=medium, H=high, R=roost present

ID	Species	Tree Age	Bat roost features present	Bat roost suitability <sup>10</sup>	Comments
H4 standards	Elmus sp., ash, crack willow, Populus sp.,	Immature to mature	Splits, wound holes, thick ivy stems	N to M	Limited to one crack willow tree.
G4	White or crack willow, ash	Early mature to mature	Splits, wound holes	L to M	Pollarded willow - large hollow in base. 2nd willow with wound holes and splits.
G5	Field maple, hazel, ash, oak, hawthorn, cherry species, crab apple, elder	Immature to mature	Wound holes, splits	N to M	1 x mature oak - no features noted but of an age to support features and foliage covering upper crown hindering inspection. 1 x mature ash with numerous wound holes and splits.

**Table 6  
Hedgerow Regulations Assessment<sup>11</sup>**

Ref	Historical					Protected or rare species			Number of Woody species per 50m			Associated Features							Qualifies as important? <sup>12</sup>
	1	2	3	4	5	a	b	c	5+	6+	7+	a	b	c	d	e	f	g	
H1	U	U	U	U	U	U	U	U	N	N	N	N	N	Y	N	Y	N	N	No
H2	U	U	U	U	U	U	U	U	N	N	N	Y	N	Y	N	Y	Y	N	No
H3	U	U	U	U	U	U	U	U	N	N	N	N	Y	N	N	Y	Y	N	No
H4	U	U	U	U	U	U	U	U	Y	N	N	N	Y	Y	N	Y	Y	N	Yes

**Criteria**

**Historic**

1. Marks a pre-1850 parish or township boundary
2. Incorporates an archaeological feature
3. Is part of or associated with an archaeological site
4. Marks the boundary of or is associated with a pre-1600 estate or manor
5. Forms an integral part of a pre- Parliamentary enclosure field system

**Protected or rare species**

6. Contains certain categories of animals or plants:
  - a) Wildlife and Countryside Act Schedule 1 birds / Schedule 5 animals
  - b) Declining breeder (category 3) in "Red Data Birds"
  - c) Categorised as "endangered", "extinct", "rare" or "vulnerable" in Britain

**Woody Species**

7. Includes:
  - a) At least 7 woody species, on average, in a 30 m length
  - b) At least 6 woody species, on average, in a 30 m length and has three associated features
  - c) At least 6 woody species, on average, in a 30 m length, including a black-poplar tree, or large-leaved lime, or small-leaved lime, or wild service-tree
  - d) At least 5 woody species, on average, in a 30 m length and has at least 4 associated features

**Associated features are:**

- a) A bank or wall supporting the hedgerow
- b) Less than 10% gaps
- c) On average, at least one tree per 50 metres
- d) At least 3 species from a list of 57 woodland plants
- e) A ditch
- f) A number of connections with other hedgerows, ponds or woodland
- g) A parallel hedge within 15 m

<sup>11</sup> U=unknown, N=no, Y=yes

<sup>12</sup> Under woody species and associated features only



**Appendix 3 – Data Search Results**



**Biodiversity Report**

Site: Bicester

TVERC Ref: TVERC/17/089

Prepared for: Prime Environment Ltd

Date: 17/05/2017

By Thames Valley Environmental Records Centre



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## TABLE OF CONTENTS

### The following are included in this report:

#### GENERAL INFORMATION:

- Terms & Conditions
- Species data statements

#### PROTECTED & NOTABLE SPECIES INFORMATION:

- Table of legally protected and notable species (2km search area)
- Species status key
- Data origin key

#### DESIGNATED WILDLIFE SITE INFORMATION:

- A map of designated wildlife sites (2km search area)
- Descriptions/citations for designated wildlife sites
- Designated wildlife sites guidance

## TERMS AND CONDITIONS

The copyright for this document and the information provided is retained by Thames Valley Environmental Records Centre. The copyright for some of the species data will be held by a recording group or individual recorder. Where this is the case, and the group or individual providing the data is known, the data origin will be given in the species table.

TVERC must be acknowledged if any part of this report or data derived from it is used in a report. The whole document may be used as an appendix within your report.

The data in this report can only be used for the project for which it was requested. It cannot be passed on to third parties without permission of TVERC (this excludes reports presented to clients and Local Authorities).

The data should be considered valid for a maximum 12 months from the date on the cover of this report. If the data is to be used after that time an update should be requested. The data must not be added to any permanent database system.

The absence of any species or habitat data for any site, area or location does not mean that any species or habitat is not present.

## MAPS

To reproduce the Ordnance Survey mapping you must hold a relevant licence for the use of Ordnance Survey mapping or it can be copied at a printers or copyshop that holds a licence to carry out search work (see the Ordnance Survey website).

## DATA STATEMENTS

### STATEMENT ON BIRD RECORDS IN OXFORDSHIRE (DATA MARKED AS "OOS" IN THE DATA ORIGIN COLUMN)

The majority of bird records in Oxfordshire, except those in the north of the county, have been provided by the Oxford Ornithological Society. Such records have a value of OOS in the data origin column. Please note that:

- a. Not all species are subject to the same degree of recording; the absence of records of a species in a given geographical area does not necessarily indicate absence of that species.
- b. Not all parts of the county are subject to the same degree of recording; the absence of records for a given area does not necessarily indicate the absence of bird species.
- c. Records of species regarded as sensitive have been provided with reduced information about location. Any requests for more precise information about the location of such "confidential" sites should be addressed directly to OOS ([www.oos.org.uk](http://www.oos.org.uk)) You can use the following email contacts [chairman@oos.org.uk](mailto:chairman@oos.org.uk) (the chairman) and [ian@recorder.fsnet.co.uk](mailto:ian@recorder.fsnet.co.uk) (the county bird recorder).

### STATEMENT ON WILDLIFE TRUST WATER VOLE DATA

Since 2008 data has been collected as positive or negative sections of watercourses. Positive sections crossing into search areas are included within the data. These are shown with the central grid reference for the stretch of watercourse. This may fall outside the search area but the stretch will be at least partly within the search area. The location information shows the beginning and end points of the stretch of watercourse.

### USE OF NBN GATEWAY DATA

Commercial organisations and members of the public may refer to the National Biodiversity Network (NBN) Gateway for wildlife records and habitat and designated site information for their own private use.

The NBN Gateway's Terms and Conditions state "*You may not republish wholesale the material, data and/or information made available to you, or exploit it for commercial or academic research purposes without first obtaining written permission from the relevant data provider*". This means that environmental consultants cannot use NBN data in ecology reports for planning applications unless they have obtained written permission from all the data providers. If NBN Gateway data are also provided for this project please make sure that the NBN Gateway's terms and conditions are followed precisely.

The National Planning Policy Framework states that "*planning policies and decisions should be based on up-to date information about the natural environment and other characteristics of*

*the area*". The NBN Gateway does not hold the most up-to-date, comprehensive or highest resolution information on protected and notable species, local sites or habitats in Berkshire and Oxfordshire.

TVERC have advised planning authorities in Berkshire and Oxfordshire that ecology reports using only NBN data should not usually be validated and the NBN has requested that suspected breaches of NBN terms and conditions are reported to the NBN Data Access Officer, who will take appropriate action. Further detail is available on our website:

<http://www.tverc.org/cms/content/ecological-survey-reports-planning-applications>.

### STATEMENT ON GRID REFERENCES

The following types of grid references are provided:

- Six figure grid references. Many of these will be an assigned relatively central grid reference for a site though with small sites the assigned grid reference for a site could be close to the edge. The record may have come from anywhere within the site. Where additional location information is provided the reference may be more accurate or central to a subsite within the larger site. Where the location is not site based, the grid reference should be within 100 metres of the location.
- Four figure grid references. Generally these are 1km square records often with some location information to give an idea of which part of the 1km square the record was found. Sometime this information can be quite accurate. Where a large site is referred to the location should be in that part of the 1km square that is within the site. In some case these may be tetrad records with grid reference referring to a 2km x 2km square. This includes some confidential records from Oxford Ornithological Society. Other tetrad data is rarely included.
- Eight and ten figure grid references: These are generally accurately worked out to the location where the species was found. However for small and narrow sites eight figure grid references may be used as a central grid reference for a site.
- TVERC intends to start tagging data to qualify these grid references but at present only a limited amount of qualification is provided. 1km square records are tagged as 1km record and 2km square records are tagged as 2km record.

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
<b>Amphibians</b>												
<i>Palomate Newt</i>	<i>Lissotriton helveticus</i>	2 Females	10/06/2009	SP58782180		Langford Village	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Palomate Newt</i>	<i>Lissotriton helveticus</i>	1 Female	07/05/2009	SP58782180		Langford Village	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Palomate Newt</i>	<i>Lissotriton helveticus</i>	1 Female	14/05/2009	SP58782180		Langford Village	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Palomate Newt</i>	<i>Lissotriton helveticus</i>	1 Female	28/05/2009	SP58842179		Langford Village	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Palomate Newt</i>	<i>Lissotriton helveticus</i>	1 Immature	10/06/2009	SP58842179		Langford Village	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Palomate Newt</i>	<i>Lissotriton helveticus</i>	1 Female	10/06/2009	SP58942189		Langford Village	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Palomate Newt</i>	<i>Lissotriton helveticus</i>	1 Female	14/05/2009	SP58942189		Langford Village	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Palomate Newt</i>	<i>Lissotriton helveticus</i>	1 Female	28/05/2009	SP58942189		Langford Village	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Palomate Newt</i>	<i>Lissotriton helveticus</i>	1 Female	07/05/2009	SP59302193		Langford Village	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Palomate Newt</i>	<i>Lissotriton helveticus</i>	1 Female	11/05/2009	SP59302193		Langford Village	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Adult	01/06/2002	SP56022167			field record	ORAG		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	4 Females; 7 Males	28/05/2009	SP58782180		Langford Village	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Female	10/06/2009	SP58782180		Langford Village	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	3 Males; 3 Females	07/05/2009	SP58782180		Langford Village	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Female; 11 Males	14/05/2009	SP58782180		Langford Village	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Male; 1 Female	28/05/2009	SP58842179		Langford Village	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	2 Males	07/05/2009	SP58842179		Langford Village	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Male; 1 Female	14/05/2009	SP58842179		Langford Village	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Female; 5 Males	10/06/2009	SP58942189		Langford Village	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	2 Males	14/05/2009	SP58942189		Langford Village	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Male	28/05/2009	SP58942189		Langford Village	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Male; 1 Female	11/05/2009	SP59302193		Langford Village	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	2 Females	03/06/2015	SP5967920583		Symmetry Park, Bicester	bottle trap	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	4 Females; 5 Males	11/05/2015	SP5967920583		Symmetry Park, Bicester	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	4 Males	11/05/2015	SP5967920583		Symmetry Park, Bicester	bottle trap	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	2 Males	20/05/2015	SP5967920583		Symmetry Park, Bicester	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Female; 3 Males	20/05/2015	SP5967920583		Symmetry Park, Bicester	bottle trap	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Female; 4 Males	05/05/2015	SP5967920583		Symmetry Park, Bicester	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Male; 2 Females	05/05/2015	SP5967920583		Symmetry Park, Bicester	bottle trap	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Female; 2 Males	09/05/2015	SP5967920583		Symmetry Park, Bicester	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Female	22/04/2015	SP5967920583		Symmetry Park, Bicester	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	2 Males; 4 Females	22/04/2015	SP5967920583		Symmetry Park, Bicester	bottle trap	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Female; 4 Males	03/06/2015	SP5967920583		Symmetry Park, Bicester	field record	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	1 Female; 2 Males	15/06/2009	SP59802222		Gavray Drive Meadows	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	11 Males; 4 Females	19/05/2009	SP59802222		Gavray Drive Meadows	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Smooth Newt</i>	<i>Lissotriton vulgaris</i>	8 Males	10/06/2009	SP59802222		Gavray Drive Meadows	trapped (other)	EC		WACA-Sch5-s9.5a/s9.5b		
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	3 Adults	29/04/2015	SP5942221047		Bicester	field record	GCN	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	4 Adults	15/04/2015	SP5942221047		Bicester	field record	GCN	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	6	20/05/2015	SP5967820585		Granary Cottage, The Byre, Bicester	nocturnal record	GCN	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	9	22/04/2015	SP5967820585		Granary Cottage, The Byre, Bicester	trapped (other)	GCN	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	1 Female; 3 Juveniles	03/06/2015	SP5967920583		Symmetry Park, Bicester	bottle trap	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	2 Males; 2 Females	11/05/2015	SP5967920583		Symmetry Park, Bicester	field record	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	2 Males; 4 Females	11/05/2015	SP5967920583		Symmetry Park, Bicester	bottle trap	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	3 Males; 6 Females	20/05/2015	SP5967920583		Symmetry Park, Bicester	field record	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	1 Female; 3 Males	20/05/2015	SP5967920583		Symmetry Park, Bicester	bottle trap	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	1 Male; 1 Female	05/05/2015	SP5967920583		Symmetry Park, Bicester	field record	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	1 Dead; 3 Juveniles	09/05/2015	SP5967920583		Symmetry Park, Bicester	field record	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	1 Female; 5 Juveniles	09/05/2015	SP5967920583		Symmetry Park, Bicester	bottle trap	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	1 Male; 2 Females	22/04/2015	SP5967920583		Symmetry Park, Bicester	field record	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	3 Males; 6 Females	22/04/2015	SP5967920583		Symmetry Park, Bicester	bottle trap	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	Eggs	22/04/2015	SP5967920583		Symmetry Park, Bicester	egg	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	3 Females	03/06/2015	SP5967920583		Symmetry Park, Bicester	field record	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	4 Females	15/06/2009	SP59802222		Gavray Drive Meadows	trapped (other)	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	4 Females	19/05/2009	SP59802222		Gavray Drive Meadows	trapped (other)	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	1 Female	10/06/2009	SP59802222		Gavray Drive Meadows	trapped (other)	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	37 Adults	15/04/2015	SP5985521269		Bicester	field record	GCN	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Great Crested Newt</i>	<i>Triturus cristatus</i>	10 Adults	29/04/2015	SP5985521269		Bicester	field record	GCN	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<i>Common Toad</i>	<i>Bufo bufo</i>	1 Adult	01/07/2003	SP56022167			field record	ORAG		WACA-Sch5-s9.5a/s9.5b	NERC-S41	
<i>Common Toad</i>	<i>Bufo bufo</i>	1 Adult	Summer 1993	SP56202131			field record	ORAG		WACA-Sch5-s9.5a/s9.5b	NERC-S41	
<i>Common Frog</i>	<i>Rana temporaria</i>	Eggs	Spring 1992	SP56022167			field record	ORAG	HabDir-A5	WACA-Sch5-s9.5a/s9.5b		
<i>Common Frog</i>	<i>Rana temporaria</i>	Eggs	Spring 2002	SP56022167			field record	ORAG	HabDir-A5	WACA-Sch5-s9.5a/s9.5b		
<i>Common Frog</i>	<i>Rana temporaria</i>	5-100 Tadpoles	Spring 2002	SP56022167			field record	ORAG	HabDir-A5	WACA-Sch5-s9.5a/s9.5b		
<i>Common Frog</i>	<i>Rana temporaria</i>	42 Adults	01/06/2002	SP56022167			field record	ORAG	HabDir-A5	WACA-Sch5-s9.5a/s9.5b		
<i>Common Frog</i>	<i>Rana temporaria</i>	20 Adults	Summer 2003	SP56022167			field record	ORAG	HabDir-A5	WACA-Sch5-s9.5a/s9.5b		
<i>Common Frog</i>	<i>Rana temporaria</i>	1 Adult	Summer 1995	SP56202131			field record	ORAG	HabDir-A5	WACA-Sch5-s9.5a/s9.5b		
<b>Birds</b>												
<i>Greylag Goose</i>	<i>Anser anser</i>	1	2003	SP577209		Bicester Wetland Reserve	field record	DLWS		WACA-Sch1-p2		Bird-Amber
<i>Greylag Goose</i>	<i>Anser anser</i>	2	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p2		Bird-Amber
<i>Greylag Goose</i>	<i>Anser anser</i>	2	20/03/2012	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p2		Bird-Amber
<i>Greylag Goose</i>	<i>Anser anser</i>	2	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p2		Bird-Amber
<i>Greylag Goose</i>	<i>Anser anser</i>	2	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p2		Bird-Amber
<i>Greylag Goose</i>	<i>Anser anser</i>	1	24/09/2010	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p2		Bird-Amber
<i>Greylag Goose</i>	<i>Anser anser</i>	2	10/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p2		Bird-Amber
<i>Greylag Goose</i>	<i>Anser anser</i>	2	08/10/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p2		Bird-Amber
<i>Greylag Goose</i>	<i>Anser anser</i>	2	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p2		Bird-Amber



















Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
Red Kite	Milvus milvus	1 Individual	25/10/2006	SP573232		Bicester: 8 Scott Close	field record	OOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	08/08/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	23/05/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	13/04/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	13/04/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	13/06/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	05/09/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	06/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	13/04/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	2	22/01/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	06/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	03/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	2	19/02/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	18/10/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	09/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	2	17/08/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	28/06/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	13/12/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	24/10/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
Red Kite	Milvus milvus	1	05/04/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	26/05/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	13/06/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	2	09/12/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	30/07/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	2	22/01/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	30/07/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	03/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	11/10/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1	14/08/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Red Kite	Milvus milvus	1 Individual	18/07/2006	SP5823	1 km record	Bicester	field record	OOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber RL-Global-post2001-NT
Kestrel	Falco tinnunculus	1	15/11/2003	SP5720	1 km record	Bicester	field record	OOS				Bird-Amber
Kestrel	Falco tinnunculus	1	23/05/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	2	04/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	22/11/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	27/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	22/08/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	08/04/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	13/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	27/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	01/07/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	17/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	09/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	17/08/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	07/01/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	23/05/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	14/08/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	13/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	01/07/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Kestrel	Falco tinnunculus	1	05/06/2013	SP9522267		Meadow between Gavray Drive Meadows and Jarvis Lane	field record	TVERC				Bird-Amber
Kestrel	Falco tinnunculus	2	19/08/2002	SP5970225		Gavray Drive Meadows	field record	OLWS				Bird-Amber
Merlin	Falco columbarius	1	09/03/2000	SP5720	1 km record	Bicester	field record	OOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Merlin	Falco columbarius	1 Male	20/04/2003	SP5720	1 km record	Bicester	field record	OOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Merlin	Falco columbarius	1	2003	SP57209		Bicester Wetland Reserve	field record	OLWS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Hobby	Falco subbuteo	1 Individual	03/08/2006	SP52Q	1 km record		field record	OOS		WACA-Sch1-p1		

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
Hobby	Falco subbuteo	1 Individual	29/08/2006	SP52Q	1 km record	Confidential, refer to OOS for further details	field record	OOS		WACA-Sch1-p1		
Hobby	Falco subbuteo	1	30/05/2004	SP52Q	1 km record	Confidential, refer to OOS for further details	field record	OOS		WACA-Sch1-p1		
Hobby	Falco subbuteo	1 Individual	10/06/2006	SP52W	1 km record	Confidential, refer to OOS for further details	field record	OOS		WACA-Sch1-p1		
Hobby	Falco subbuteo	1	2001	SP577209		Bicester Wetland Reserve	field record	DLWS		WACA-Sch1-p1		
Peregrine	Falco peregrinus	4	2003	SP577209		Bicester Wetland Reserve	field record	DLWS	BirdsDir-A1	WACA-Sch1-p1		
Peregrine	Falco peregrinus	1	26/12/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		
Peregrine	Falco peregrinus	1	10/01/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		
Oystercatcher	Haematopus ostralegus	1	20/04/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Oystercatcher	Haematopus ostralegus	1	20/04/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Oystercatcher	Haematopus ostralegus	1	10/04/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Little Ringed Plover	Charadrius dubius	1	2003	SP577209		Bicester Wetland Reserve	field record	DLWS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	3	2004	SP577209		Bicester Wetland Reserve	field record	DLWS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	2	13/04/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	2	27/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	1	25/06/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	1	13/06/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	2	20/07/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	2	27/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	2	14/04/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	2	14/04/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	1	25/06/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	2	20/07/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	1	13/06/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	2	13/04/2011	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Little Ringed Plover	Charadrius dubius	1	06/07/2010	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Ringed Plover	Charadrius hiaticula	1	28/07/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Ringed Plover	Charadrius hiaticula	1	28/07/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Golden Plover	Pluvialis apricaria	6 Individuals	22/10/2006	SP5720	1 km record	Bicester: Bicester Golf Club	field record	OOS	BirdsDir-A1			Bird-Amber
Golden Plover	Pluvialis apricaria	3	2004	SP577209		Bicester Wetland Reserve	field record	DLWS	BirdsDir-A1			Bird-Amber
Golden Plover	Pluvialis apricaria	1	2001	SP577209		Bicester Wetland Reserve	field record	DLWS	BirdsDir-A1			Bird-Amber
Golden Plover	Pluvialis apricaria	1	2002	SP577209		Bicester Wetland Reserve	field record	DLWS	BirdsDir-A1			Bird-Amber
Lapwing	Vanellus vanellus	Breeding confirmed	01/01/2013-21/12/2013	SP57002190		Near Bicester		EC			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	40 Individuals	04/02/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	23 Individuals	15/01/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	2	2003	SP577209		Bicester Wetland Reserve	field record	DLWS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	6	2001	SP577209		Bicester Wetland Reserve	field record	DLWS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	1	2002	SP577209		Bicester Wetland Reserve	field record	DLWS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	8	2004	SP577209		Bicester Wetland Reserve	field record	DLWS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	1	12/08/2013	SP577209		Bicester Wetland Reserve	field record	DLWS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	1	2000	SP577209		Bicester Wetland Reserve	field record	DLWS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	4	29/05/2009-30/06/2009	SP577210		Bicester Wetland Reserve	field record	EC			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	2	18/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	16	27/07/2012	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	60	18/11/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	37	10/10/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	1	25/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	3	10/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	1	27/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	13	25/06/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
Lapwing	Vanellus vanellus	35	04/07/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	28	01/07/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	40	24/12/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	40	17/01/2012	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	31	27/12/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	2	24/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Lapwing	Vanellus vanellus	300	23/02/2001	SP578217		Bicester	field record	OOS			NERC-S41	Bird-Red
Common Sandpiper	Actitis hypoleucos	1 Individual	13/04/2006	SP5720	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1 Individual	28/08/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1 Individual	23/08/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1 Individual	09/09/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	3	2002	SP577209		Bicester Wetland Reserve	field record	DLWS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	5	2004	SP577209		Bicester Wetland Reserve	field record	DLWS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1	2000	SP577209		Bicester Wetland Reserve	field record	DLWS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	2	2003	SP577209		Bicester Wetland Reserve	field record	DLWS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	2	2001	SP577209		Bicester Wetland Reserve	field record	DLWS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1	02/08/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1	31/07/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1	18/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1	12/06/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1	27/07/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1	24/08/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1	21/08/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Common Sandpiper	Actitis hypoleucos	1	25/07/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Snipe	Gallinago gallinago	25 Individuals	14/02/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	10 Individuals	04/02/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	27 Individuals	25/02/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	8 Individuals	11/02/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	8 Individuals	18/02/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	10 Individuals	29/01/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	41 Individuals	22/10/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	4 Individuals	28/08/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	13 Individuals	16/09/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	12 Individuals	26/12/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	18 Individuals	18/03/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	33 Individuals	01/01/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	5 Individuals	06/08/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	1 Individual	01/09/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Snipe	Gallinago gallinago	1 Individual	02/04/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber



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Jack Snipe	Lymnocyptes minimus	2 Individuals	14/02/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	2000	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	2	2002	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	5	2004	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	3	2003	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	2	08/01/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	16/02/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	02/01/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	2	30/11/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	09/11/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	2	19/02/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	02/11/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	16/02/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	14/02/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	18/01/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	05/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	23/03/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	2	15/03/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	23/03/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	16/02/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	24/01/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	18/01/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	2	08/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	2	21/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	18/10/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	28/09/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	3	23/02/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	5	26/02/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	2	27/11/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
Jack Snipe	Lymnocyptes minimus	6	02/03/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	10/02/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	14/02/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	1	24/01/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Jack Snipe	Lymnocyptes minimus	3	05/03/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Curlew	Numenius arquata	1	16/05/2004	SP5720	1 km record	Bicester: Bicester Golf Club	field record	OOS			NERC-S41	Bird-Amber RL-Global-post2001-NT
Curlew	Numenius arquata	1	2004	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Amber RL-Global-post2001-NT
Dunlin	Calidris alpina	1	21/09/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Red
Dunlin	Calidris alpina	1	20/09/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Red
Dunlin	Calidris alpina	1	22/09/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Red
Black-tailed Godwit	Limosa limosa	1	2004	SP577209		Bicester Wetland Reserve		OLWS		WACA-Sch1-p1	NERC-S41	Bird-Red RL-Global-post2001-NT
Redshank	Tringa totanus	1	2000	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Redshank	Tringa totanus	1	2004	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Redshank	Tringa totanus	1	10/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Redshank	Tringa totanus	1	23/09/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Green Shank	Tringa nebularia	2	02/10/1998	SP5721	1 km record	Bicester: Bicester Sewage Farm	field record	OOS		WACA-Sch1-p1		
Green Shank	Tringa nebularia	1 Individual	14/07/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		
Green Shank	Tringa nebularia	1	2000	SP577209		Bicester Wetland Reserve		OLWS		WACA-Sch1-p1		
Green Shank	Tringa nebularia	1	12/08/2013	SP577209		Bicester Wetland Reserve		OLWS		WACA-Sch1-p1		
Green Shank	Tringa nebularia	4	18/10/2012	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		
Green Sandpiper	Tringa ochropus	5 Individuals	30/12/2006	SP5720	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	1 Individual	16/02/2006	SP5720	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	1 Individual	16/02/2006	SP5720	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	1 Individual	06/11/2006	SP5720	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	4 Individuals	04/07/2006	SP5720	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	1	15/02/2004	SP5720	1 km record	Bicester: Bicester Golf Club	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	1 Individual	10/09/2006	SP5721	1 km record	Bicester: Bicester Sewage Farm	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	1 Individual	15/10/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	1 Individual	09/03/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	1 Individual	23/09/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	1 Individual	16/09/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	1 Individual	28/08/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	2 Individuals	01/08/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber
Green Sandpiper	Tringa ochropus	1 Individual	29/09/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS		WACA-Sch1-p1		Bird-Amber







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Barn Owl	Tyto alba	1	2003	SP577209		Bicester Wetland Reserve		OLWS		WACA-Sch1-p1		Bird-Amber
Swift	Apus apus		2012	SP5603521530		Culverhay, Alchester Road, Chesterton	nest	LN				Bird-Amber
Swift	Apus apus		2013	SP5603521530		Culverhay, Alchester Road, Chesterton	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP5610021185		1 The Green, Chesterton	nest	LN				Bird-Amber
Swift	Apus apus		2013	SP5610021185		1 The Green, Chesterton	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP5610021185		1 The Green, Chesterton	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP5610021185		1 The Green, Chesterton	nest	LN				Bird-Amber
Swift	Apus apus	2 Nests	2016	SP5610021185		The Green, Chesterton	nest	LN				Bird-Amber
Swift	Apus apus		2009	SP56132124		Southern end of village near the Red Cow, Chesterton	Flying	LN				Bird-Amber
Swift	Apus apus		2010	SP56132124		Southern end of village near the Red Cow, Chesterton	Flying	LN				Bird-Amber
Swift	Apus apus		2012	SP5619	1 km record	Wendlebury	field record	LN				Bird-Amber
Swift	Apus apus		2013	SP5619	1 km record	Wendlebury	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP5720522835		32a Danes Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP5720522835		32a Danes Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus	5 Adults	01/01/2011-31/12/2011	SP57382247		Kennedy Road, Bicester	Flying	RSPB				Bird-Amber
Swift	Apus apus		2012	SP57702336		15 The Oval, Bicester	nest	LN				Bird-Amber
Swift	Apus apus	3	2004	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Swift	Apus apus	1	2001	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Swift	Apus apus	20	29/05/2009-30/06/2009	SP577210		Bicester Wetland Reserve	field record	EC				Bird-Amber
Swift	Apus apus		2015	SP577223		29 Ray Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP577223		41 Ray Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2009	SP577225		Sites along and near Kingsclere Road/Chalvey Road, Bicester	Flying	LN				Bird-Amber
Swift	Apus apus		2010	SP577225		Sites along and near Kingsclere Road/Chalvey Road and Aldbourne Crescent, Bicester	Flying	LN				Bird-Amber
Swift	Apus apus		2014	SP5773422473		16 Windrush Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP5773622479		15 Windrush Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP5774722435		2 Kennet Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus	numerous Nests	2013	SP57752247		Windrush Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP57752248		Windrush Close, Bicester	Flying	LN				Bird-Amber
Swift	Apus apus		2014	SP5775622466		1 Windrush Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2016	SP5776022345		29 Ray Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP5776122478		3 Windrush Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP57762247		2 Windrush Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP57812240		Colne Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP57812240		Colne Close, Bicester	Flying	LN				Bird-Amber
Swift	Apus apus		2015	SP57812240		Colne Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus	5	24/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus	1	24/04/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus	18	15/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus	18	15/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus	2	27/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus	2	27/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus	1	04/09/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus	4	24/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus	1	18/09/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus	18	15/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus	2	27/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus	2	27/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swift	Apus apus		2010	SP57822245		Evenlode Close, Bicester	Flying	LN				Bird-Amber
Swift	Apus apus		2012	SP57822245		Evenlode Close, Bicester	Flying	LN				Bird-Amber

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Swift	Apus apus	numerous Nests	2013	SP57822245		Evenlode Close, off Kings Ave, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP578223		5 Ray Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2010	SP578224		Colne Close, Bicester	Flying	LN				Bird-Amber
Swift	Apus apus		2012	SP57842242		26 Kings Ende, Bicester	nest	LN				Bird-Amber
Swift	Apus apus	30 Adults	01/01/2010-31/12/2010	SP57842320		DX26 ZDT (The Approach, Bicester)	Flying	RSPB				Bird-Amber
Swift	Apus apus	30 Adults	01/05/2014	SP5789222426		15 Cherwell Close, Bicester	Flying	RSPB				Bird-Amber
Swift	Apus apus	5 Nests	01/05/2014	SP5789222426		15 Cherwell Close, Bicester	field record	RSPB				Bird-Amber
Swift	Apus apus		2014	SP5789522424		15 Cherwell Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP5789722431		14 Cherwell Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP5789922438		13 Cherwell Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus	3 Nests	2014	SP5790222444		12 Cherwell Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP5791722416		2, Cherwell Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP5792022423		3 Cherwell Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP5801022449		26 Kings End, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP5801022449		26 Kings End, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2016	SP5801422455		24 Kings End, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP58022246		22 Kings End, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP5802246		22 Kings End, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2009	SP580225		West side of Kings End, Bicester	Flying	LN				Bird-Amber
Swift	Apus apus		2010	SP580225		West side of Kings End, Bicester, victorian properties	Flying	LN				Bird-Amber
Swift	Apus apus	1 Adult	01/01/2011-31/12/2011	SP58112259		Queens Court, Bicester	Flying	RSPB				Bird-Amber
Swift	Apus apus	28 Adults	01/01/2011-31/12/2011	SP58112259		Queens Court, Bicester	Flying	RSPB				Bird-Amber
Swift	Apus apus		2008	SP58132242		Kings End, Bicester	Flying	LN				Bird-Amber
Swift	Apus apus		2012	SP58132242		Kings End, Bicester	Flying	LN				Bird-Amber
Swift	Apus apus	24 Adults	01/01/2011-31/12/2011	SP5814522584		6 Queens Court, Bicester	Flying	RSPB				Bird-Amber
Swift	Apus apus	11 Adults	01/01/2011-31/12/2011	SP5814522584		6 Queens Court, Bicester	Flying	RSPB				Bird-Amber
Swift	Apus apus		2014	SP58182224		St Edburg's School, Cemetery Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2013	SP58182224		St Edburg's School, Cemetery Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP58182224		St Edburg's School, Cemetery Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP58182224		St Edburg's School, Cemetery Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP58202231		7 Cemetery Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2008	SP58202231		7 Cemetery Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2009	SP58202231		7 Cemetery Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2010	SP58202231		7 Cemetery Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2013	SP58202231		7 Cemetery Road, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP58212234		The Swan, Church Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2013	SP58212234		The Swan, Church Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP58212234		The Swan, Church Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP58212234		The Swan, Church Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP58212234		The Swan, Church Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2009	SP582230		New Road, Bicester	Flying	LN				Bird-Amber
Swift	Apus apus		2010	SP582230		New Road, Bicester	Flying	LN				Bird-Amber
Swift	Apus apus		2014	SP5822522355		26 Church Street, Bicester	nest	LN				Bird-Amber

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
Swift	Apus apus		2013	SP582522355		26 Church Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP582522355		26 Church Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2016	SP582522355		5 Oxford Road	nest	LN				Bird-Amber
Swift	Apus apus		2016	SP582522355		26 Church Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2009	SP58232291		22 Field Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2010	SP58232291		22 Field Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus	8 Adults	01/01/2011-31/12/2011	SP5823722904		22 Field Street, Bicester	flying	RSPB				Bird-Amber
Swift	Apus apus	1 Nest	01/01/2011-31/12/2011	SP5823722904		22 Field Street, Bicester	field record	RSPB				Bird-Amber
Swift	Apus apus	1 Nest	01/01/2011-31/12/2011	SP5823722904		22 Field Street, Bicester	field record	RSPB				Bird-Amber
Swift	Apus apus		2014	SP58242231		1 Church Terrace, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP58242289		22 Field Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus	7 Adults	01/01/2010-31/12/2010	SP58242289		Field Street, Bicester	flying	RSPB				Bird-Amber
Swift	Apus apus	1 Nest	01/01/2010-31/12/2010	SP58242289		Field Street, Bicester	field record	RSPB				Bird-Amber
Swift	Apus apus		2013	SP58252287		5 Field Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus	2 Nests	2014	SP58262230		The Old Vicarage, Church St, Bicester	nest	LN				Bird-Amber
Swift	Apus apus	numerous Nests	2013	SP58272288		Property adjacent to Plough car park, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2016	SP58342234		4 Church Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2008	SP58352237		Henley House, Causeway, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2009	SP58352237		Henley House, Causeway, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2010	SP58352237		Henley House, Causeway, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2013	SP58352237		Henley House, Causeway, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP58352237		Henley House, The Causeway, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP58352237		Henley House, Causeway, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2014	SP5836222708		Cycle shop, 85 Sheep Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2015	SP5836222708		Cycle shop, 85 Sheep Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP58362271		85 Sheep Street, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2013	SP58562245		10 Sheep Street (Corralls), Bicester	nest	LN				Bird-Amber
Swift	Apus apus	1 Nest	2013	SP58732211		Westholme Court (off London Road), Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP58732211		Westholme Court, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP58932329		6 Nuffield Close, Bicester	nest	LN				Bird-Amber
Swift	Apus apus		2012	SP59292287		Lambourne Crescent, Launton Road, Bicester	flying	LN				Bird-Amber
Swift	Apus apus	8 Adults	13/06/2013	SP5912189		Hawkswind, Bicester	flying	RSPB				Bird-Amber
Swift	Apus apus		05/06/2013	SP59522267		Meadow between Gavray Drive Meadows and Jarvis Lane	flying	TVERC				Bird-Amber
Kingfisher	Alcedo atthis	1 Individual	17/04/2006	SP52Q	1 km record	Confidential, refer to OOS for further details	field record	OOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1 Individual	27/07/2006	SP52Q	1 km record	Confidential, refer to OOS for further details	field record	OOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1 Individual	20/07/2006	SP52Q	1 km record	Confidential, refer to OOS for further details	field record	OOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber

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Kingfisher	Alcedo atthis	1 Individual	15/08/2006	SP52Q	1 km record	Confidential, refer to OOS for further details	field record	OOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1 Individual	16/06/2006	SP52Q	1 km record	Confidential, refer to OOS for further details	field record	OOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	4	2002	SP577209		Bicester Wetland Reserve		OLWS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	6	2003	SP577209		Bicester Wetland Reserve		OLWS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	5	2000	SP577209		Bicester Wetland Reserve		OLWS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	10	2004	SP577209		Bicester Wetland Reserve		OLWS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	5	12/08/2013	SP577209		Bicester Wetland Reserve		OLWS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	5	2001	SP577209		Bicester Wetland Reserve		OLWS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1 possible breeding	29/05/2009-30/06/2009	SP577210		Bicester Wetland Reserve	field record	EC	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	Nests	24/07/2009-18/08/2009	SP5772113		Bicester Wetland Reserve	field record	EC	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	3	06/07/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	08/08/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	27/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	21/02/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	14/08/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	24/02/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	15/04/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	24/12/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	23/10/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	08/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	26/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	26/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	28/07/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	06/10/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	17/12/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	25/10/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	3	13/10/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	26/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	19/09/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	20/09/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	01/08/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	26/03/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	2	25/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	18/06/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	28/09/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	18/09/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	20/03/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	28/03/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	01/07/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	19/02/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	14/11/2012	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	24/02/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	05/10/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	26/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	2	09/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	10/07/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	16/02/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	28/01/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	18/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS	BirdsDir-A1	WACA-Sch1-p1		Bird-Amber
Kingfisher	Alcedo atthis	1	20/11/1980	SP58204		Graven Hill	field record	QBRC		WACA-Sch1-p1		Bird-Amber
Green Woodpecker	Picus viridis	2 Juveniles	15/10/2006	SP5720	1 km record	Bicester: Bicester Golf Club	field record	OOS				Bird-Amber
Green Woodpecker	Picus viridis	1 Individual	04/07/2006	SP5720	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Green Woodpecker	Picus viridis	3 Individuals	20/07/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber



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Sand Martin	Riparia riparia	3	2004	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Sand Martin	Riparia riparia	1	2001	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Sand Martin	Riparia riparia	2	10/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swallow	Hirundo rustica	3 Individuals	08/10/2006	SP5720	1 km record	Bicester: Bicester Golf Club	field record	OOS				Bird-Amber
Swallow	Hirundo rustica	2 Adults; 4 Juveniles	01/10/2006	SP5720	1 km record	Bicester: Bicester Golf Club	field record	OOS				Bird-Amber
Swallow	Hirundo rustica	1	28/03/2001	SP5720	1 km record	Bicester	field record	OOS				Bird-Amber
Swallow	Hirundo rustica	2 Adults	10/07/2004	SP5720	1 km record	Bicester: Bicester Golf Club	field record	OOS				Bird-Amber
Swallow	Hirundo rustica	4 Juveniles	10/07/2004	SP5720	1 km record	Bicester: Bicester Golf Club	field record	OOS				Bird-Amber
Swallow	Hirundo rustica	1 Individual	30/09/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Swallow	Hirundo rustica	1 Individual	02/04/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Swallow	Hirundo rustica	1 Breeding Pair	29/05/2009-30/06/2009	SP577210		Bicester Wetland Reserve	field record	EC				Bird-Amber
Swallow	Hirundo rustica	3	12/09/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swallow	Hirundo rustica	2	05/04/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swallow	Hirundo rustica	1	19/09/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swallow	Hirundo rustica	1	24/03/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swallow	Hirundo rustica	1	27/10/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Swallow	Hirundo rustica	1	05/06/2013	SP59522267		Meadow between Gavray Drive Meadows and Jarvis Lane	field record	TVERC				Bird-Amber
House Martin	Delichon urbicum	60	15/05/2004	SP5720	1 km record	Bicester: Bicester Golf Club	field record	OOS				Bird-Amber
House Martin	Delichon urbicum	1 Individual	09/04/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
House Martin	Delichon urbicum	1	2003	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
House Martin	Delichon urbicum	4	2004	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
House Martin	Delichon urbicum	6	29/05/2009-30/06/2009	SP577210		Bicester Wetland Reserve	field record	EC				Bird-Amber
House Martin	Delichon urbicum	200	27/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
House Martin	Delichon urbicum	150	06/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
House Martin	Delichon urbicum	2	24/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
House Martin	Delichon urbicum	50	05/09/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
House Martin	Delichon urbicum	200	27/05/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
House Martin	Delichon urbicum	1	17/04/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Meadow Pipit	Anthus pratensis	2	28/11/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Yellow Wagtail	Motacilla flava	2	2001	SP577209		Bicester Wetland Reserve		OLWS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava	1	2002	SP577209		Bicester Wetland Reserve		OLWS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava	1	2004	SP577209		Bicester Wetland Reserve		OLWS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava	2	2000	SP577209		Bicester Wetland Reserve		OLWS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava	3	2003	SP577209		Bicester Wetland Reserve		OLWS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	3 Individuals	13/04/2006	SP5721	1 km record	Bicester: Bicester Sewage Farm	field record	OOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	2	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	1	16/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	2	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	3	15/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	1	15/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	1	16/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	3	15/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	3	15/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	2	19/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red

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Yellow Wagtail	Motacilla flava subsp. flavissima	1	17/08/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	1	02/09/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	2	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	2	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	3	15/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	1	16/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	1	16/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	2	19/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	2	19/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Yellow Wagtail	Motacilla flava subsp. flavissima	2	19/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC s41	Bird-Red
Grey Wagtail	Motacilla cinerea	2 Individuals	06/11/2006	SP5720	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1 Individual	04/07/2006	SP5720	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	3 Individuals	25/11/2006	SP5721	1 km record	Bicester: Bicester Sewage Farm	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1 Individual	02/12/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1 Individual	17/08/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1 Individual	31/12/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1 Individual	22/11/2006	SP5721	1 km record	Bicester: Bicester Sewage Farm	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	3 Individuals	25/11/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	3 Individuals	30/12/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	5 Individuals	13/10/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1 Individual	16/09/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1 Individual	26/10/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1 Individual	07/09/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	3 Individuals	14/02/2006	SP5721	1 km record	Bicester: Bicester Sewage Farm	field record	OOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	9	2002	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Grey Wagtail	Motacilla cinerea	18	2003	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Grey Wagtail	Motacilla cinerea	14	2004	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Grey Wagtail	Motacilla cinerea	10	2000	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Grey Wagtail	Motacilla cinerea	17	2001	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	29/05/2009-30/06/2009	SP577210		Bicester Wetland Reserve	field record	EC				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	02/02/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	11/01/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	3	19/01/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	4	16/01/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	11/11/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	16/02/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	2	07/10/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
Grey Wagtail	Motacilla cinerea	1	20/03/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	04/11/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	16/02/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	05/09/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	15/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	17/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	12/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	28/09/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	4	26/10/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	07/10/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	01/01/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	26/08/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	09/11/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	16/02/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	10/02/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	2	07/09/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	06/11/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	14/12/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	26/12/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	23/10/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	31/12/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	2	19/09/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	03/10/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	18/11/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	2	27/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	07/02/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Grey Wagtail	Motacilla cinerea	1	27/11/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Duncock	Prunella modularis	2 Breeding Pairs	29/05/2009-30/05/2009	SP577210		Bicester Wetland Reserve	field record	EC			NERC-S41	Bird-Amber
Duncock	Prunella modularis		26/06/2002	SP598222		Gavray Drive Meadows		OLWS			NERC-S41	Bird-Amber
Wheatear	Oenanthe oenanthe	1 Individual	15/04/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Wheatear	Oenanthe oenanthe	1	07/10/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Wheatear	Oenanthe oenanthe	1	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Wheatear	Oenanthe oenanthe	1	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Wheatear	Oenanthe oenanthe	1	25/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Wheatear	Oenanthe oenanthe	1	06/08/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Wheatear	Oenanthe oenanthe	1	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Wheatear	Oenanthe oenanthe	1	13/08/2011	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Fieldfare	Turdus pilaris	8 Individuals	22/10/2006	SP5720	1 km record	Bicester: Bicester Golf Club	field record	OOS		WACA-Sch1-p1		Bird-Red
Fieldfare	Turdus pilaris	30	09/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		Bird-Red
Fieldfare	Turdus pilaris	9	29/12/2010	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		Bird-Red
Song Thrush	Turdus philomelos	2 Breeding Pairs	29/05/2009-30/06/2009	SP577210		Bicester Wetland Reserve	field record	EC			NERC-S41	Bird-Red
Song Thrush	Turdus philomelos		26/06/2002	SP598222		Gavray Drive Meadows		OLWS			NERC-S41	Bird-Red
Mistle Thrush	Turdus viscivorus		1977 - 1987	SP561218		Gagle Brook Flood Plain, Chesterton	field record	BBOWT				Bird-Amber
Whitethroat	Sylvia communis	1 Individual	23/04/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS				Bird-Amber
Whitethroat	Sylvia communis	1	2002	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Whitethroat	Sylvia communis	1	2000	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Whitethroat	Sylvia communis	1	2001	SP577209		Bicester Wetland Reserve		OLWS				Bird-Amber
Whitethroat	Sylvia communis	2 Breeding Pairs	29/05/2009-30/06/2009	SP577210		Bicester Wetland Reserve	field record	EC				Bird-Amber
Whitethroat	Sylvia communis	2	24/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Whitethroat	Sylvia communis	1	09/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS				Bird-Amber
Whitethroat	Sylvia communis	1	05/06/2013	SP59522267		Meadow between Gavray Drive Meadows and Jarvis Lane		TVERC				Bird-Amber
Whitethroat	Sylvia communis		26/06/2002	SP598222		Gavray Drive Meadows		OLWS				Bird-Amber

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
Bearded Tit	Panurus biarmicus	1	12/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		Bird-Amber
Bearded Tit	Panurus biarmicus	1	14/11/2012	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		Bird-Amber
Bearded Tit	Panurus biarmicus	1	17/12/2012	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		Bird-Amber
Bearded Tit	Panurus biarmicus	1	Nov-12	SP578208		Bicester Wetland Reserve	field record	BOS		WACA-Sch1-p1		Bird-Amber
Firecrest	Regulus ignicapilla	1	23/01/1998	SP52Q	1 km record		Confidential, refer to OOS for further details	OOS		WACA-Sch1-p1		Bird-Amber
Willow Tit	Poecile montana	1	2002	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Red
Willow Tit	Poecile montana	1	2003	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Red
Willow Tit	Poecile montana	2	2001	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Red
Marsh Tit	Poecile palustris	1	2003	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Red
Starling	Sturnus vulgaris	500	13/09/2004	SP5720	1 km record	Bicester	field record	OOS			NERC-S41	Bird-Red
Starling	Sturnus vulgaris	50	03/10/2012	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
House Sparrow	Passer domesticus	30	13/09/2004	SP5720	1 km record	Bicester	field record	OOS			NERC-S41	Bird-Red
Linnet	Linaria cannabina		1977 - 1987	SP561218		Gagle Brook Flood Plain, Chesterton	field record	BBOWT			NERC-S41	Bird-Red
Linnet	Linaria cannabina		1977 - 1987	SP562220		Bignell Lodge Farm Meadow	field record	BBOWT			NERC-S41	Bird-Red
Linnet	Linaria cannabina	Breeding confirmed	01/01/2013-31/12/2013	SP57002190		Near Bicester		EC			NERC-S41	Bird-Red
Linnet	Linaria cannabina	1	2002	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Red
Linnet	Linaria cannabina	1 Breeding Pair	29/05/2009-30/06/2009	SP577210		Bicester Wetland Reserve	field record	EC			NERC-S41	Bird-Red
Linnet	Linaria cannabina	50	02/11/2012	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Red
Twite	Linaria flavistris	1	2000	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Red
Bullfinch	Pyrrhula pyrrhula		05/06/2013	SP59522267		Meadow between Gavray Drive Meadows and Jarvis Lane		TVERC			NERC-S41	Bird-Amber
Yellowhammer	Emberiza citrinella	Breeding confirmed	01/01/2013-31/12/2013	SP57002190		Near Bicester		EC			NERC-S41	Bird-Red
Yellowhammer	Emberiza citrinella		28/07/1987	SP5722AD		Roman Road by Hayfield	field record	BBOWT			NERC-S41	Bird-Red
Yellowhammer	Emberiza citrinella		05/06/2013	SP59522267		Meadow between Gavray Drive Meadows and Jarvis Lane		TVERC			NERC-S41	Bird-Red
Reed Bunting	Emberiza schoeniclus	1 Individual	04/07/2006	SP5720	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	1	03/01/2004	SP5720	1 km record	Bicester: Bicester Golf Club	field record	OOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	1 Individual	30/12/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	1 Individual	14/05/2006	SP5721	1 km record	Bicester: Bicester Wetland Reserve	field record	OOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	10	2001	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	14	2003	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	10	2004	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	13	2002	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	13	2000	SP577209		Bicester Wetland Reserve		OLWS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	3 Breeding Pairs	29/05/2009-30/06/2009	SP577210		Bicester Wetland Reserve	field record	EC			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	2	16/03/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	1	06/11/2012	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	1	28/04/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	4	09/07/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	2	28/09/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	2	24/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	3	25/06/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	1	24/03/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	2	25/04/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	1	29/12/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	1	28/04/2011	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber
Reed Bunting	Emberiza schoeniclus	2	27/05/2010	SP578208		Bicester Wetland Reserve	field record	BOS			NERC-S41	Bird-Amber

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
<i>Bullhead</i>	Cottus gobio		24/07/2009-18/08/2009	SP596223		Gavray Drive Meadows, Upper Langford Brook	field record	EC	HabDir-A2np			
<b>Higher Plants - Flowering Plants</b>												
<i>Good-King-Henry</i>	Chenopodium bonus-henricus		1977 - 1987	SP561218		Gagle Brook Flood Plain, Chesterton	field record	BBOWT				RL-GB-post2001-VU
<i>Good-King-Henry</i>	Chenopodium bonus-henricus		Pre 1988	SP568206		Bowler's Copse, North Meadow	field record	BBOWT				RL-GB-post2001-VU
<i>Bluebell</i>	Hyacinthoides non-scripta		1990	SP562213		Chesterton Churchyard	field record	LN		WACA-Sch8		
<i>Bluebell</i>	Hyacinthoides non-scripta		28/04/1987	SP588204		Graven Hill	field record	BBOWT		WACA-Sch8		
<i>Bluebell</i>	Hyacinthoides non-scripta	LF (DAFOR)	14/07/2011	SP588204		Graven Hill		OLWS		WACA-Sch8		
<i>Bluebell</i>	Hyacinthoides non-scripta		14/06/2002	SP588204		Graven Hill		OLWS		WACA-Sch8		
<i>Greater Water-parsnip</i>	Slum latifolium		28/07/2009-18/08/2009	SP590224		Tubbs Crossing stream, Bicester	field record	EC			NERC-S41	RL-GB-post2001-EN Status-NS
<b>Invertebrates - Beetles</b>												
<i>A Beetle</i>	Bembidion (Semicampa) glivipes		16/01/2003	SP5922	1 km record	Gavray Drive Meadows	Collection from 'grass-tussocks'	LN				Notable-B
<i>A Beetle</i>	Bembidion (Semicampa) glivipes		16/01/2003	SP598222		Gavray Drive Meadows	Collection from 'grass-tussocks'	LN				Notable-B
<i>Scarce Four-dot Pin-pole</i>	Bembidion (Bembidion) quadripustulatum		14/06/2000	SP579210		Bicester Wetland Reserve	field record	OBRC			NERC-S41	Notable-B
<i>A Beetle</i>	Sepedophilus pedicularius		16/01/2003	SP598222		Gavray Drive Meadows	Collection from 'grass-tussocks'	OBRC				Notable
<i>A Beetle</i>	Amidobia talpa		16/01/2003	SP5922	1 km record	Gavray Drive Meadows	Collection from 'grass-tussocks'	OBRC				Notable
<i>A Beetle</i>	Philonthus fumarius		16/01/2003	SP5922	1 km record	Gavray Drive Meadows	Collection from 'grass-tussocks'	OBRC				Notable-B
<b>Invertebrates - Butterflies</b>												
<i>Grizzled Skipper</i>	Pyrgus malvae		28/05/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-VU
<i>Grizzled Skipper</i>	Pyrgus malvae	1	18/05/1997	SP5723	1 km record		field record	BBOWT			NERC-S41	RL-GB-post2001-VU
<i>Grizzled Skipper</i>	Pyrgus malvae	1 Adult	18/05/1997	SP5723	1 km record	Bicester N W	field record	BC			NERC-S41	RL-GB-post2001-VU
<i>Grizzled Skipper</i>	Pyrgus malvae	Adults	14/06/2002	SP588204		Graven Hill	field record	OLWS			NERC-S41	RL-GB-post2001-VU
<i>Grizzled Skipper</i>	Pyrgus malvae	1 Individual	02/06/2013	SP597223		Gavray Drive Meadows	field record	LN			NERC-S41	RL-GB-post2001-VU
<i>Small Blue</i>	Cupido minimus		01/06/1990	SP5622	1 km record		field record	BC		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-NT
<i>Small Blue</i>	Cupido minimus		13/08/1990	SP5622	1 km record		field record	BC		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-NT
<i>Small Blue</i>	Cupido minimus		24/07/1990	SP5622	1 km record		field record	BC		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-NT
<i>Small Blue</i>	Cupido minimus		27/07/1990	SP5622	1 km record		field record	BC		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-NT
<i>Small Blue</i>	Cupido minimus	10 to 29	28/05/1990	SP5622	1 km record		field record	BC		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-NT
<i>Small Blue</i>	Cupido minimus		01/06/1990	SP5622	1 km record		field record	BC		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-NT
<i>Small Blue</i>	Cupido minimus		01/08/1990	SP5622	1 km record		field record	BC		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-NT
<i>White-letter Hairstreak</i>	Satyrum w-album	2 to 9	27/07/1997	SP5622	1 km record	Whitelands Farm	field record	BC		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-EN
<i>Black Hairstreak</i>	Satyrum pruni	2 Adults	15/06/2008	SP597222		Gavray Drive Meadows	field record	BC		WACA-Sch5-s9.5a/s9.5b		RL-GB-post2001-EN
<i>Black Hairstreak</i>	Satyrum pruni	2 Adults	19/06/2015	SP597222		Gavray Drive Meadows	field record	BC		WACA-Sch5-s9.5a/s9.5b		RL-GB-post2001-EN
<i>Black Hairstreak</i>	Satyrum pruni	2 Adults	30/06/2013	SP597222		Gavray Drive Bicester	field record	BC		WACA-Sch5-s9.5a/s9.5b		RL-GB-post2001-EN
<i>Black Hairstreak</i>	Satyrum pruni	2 Adults	15/06/2007	SP597222		Gavray Drive Meadows	field record	BC		WACA-Sch5-s9.5a/s9.5b		RL-GB-post2001-EN
<i>Black Hairstreak</i>	Satyrum pruni	1 Adult	22/06/2010	SP598221		Gavray Drive Meadows	field record	BC		WACA-Sch5-s9.5a/s9.5b		RL-GB-post2001-EN
<i>Black Hairstreak</i>	Satyrum pruni	2 Adults	15/06/2007	SP598222		Gavray Drive Meadows	field record	BC		WACA-Sch5-s9.5a/s9.5b		RL-GB-post2001-EN
<i>Black Hairstreak</i>	Satyrum pruni	1	17/06/2014	SP5982207		Gavray Drive Meadows	field record	BC		WACA-Sch5-s9.5a/s9.5b		RL-GB-post2001-EN
<i>Brown Hairstreak</i>	Thecla betulae	1 Individual	16/09/2013	SP597223		Gavray Drive Meadows	field record	LN		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-VU
<i>Brown Hairstreak</i>	Thecla betulae	1 Female	22/09/2013	SP599219		Gavray Drive Meadows (non LWS)	photographed	LN		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-VU

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
<i>Brown Hairstreak</i>	Thecla betulae	1	27/10/2005	SP599219		Gavray Drive Meadows	photographed	OLWS		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-VU
<i>Brown Hairstreak</i>	Thecla betulae	1 Female	16/09/2013	SP599220		Gavray Drive Meadows (non LWS)	photographed	LN		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-VU
<i>Brown Hairstreak</i>	Thecla betulae	1	27/10/2005	SP599220		Gavray Drive Meadows		OLWS		WACA-Sch5-s9.5a/s9.5b	NERC-S41	RL-GB-post2001-VU
<i>Small Heath</i>	Coenonympha pamphilus		28/06/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	1 Adult	28/05/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus		30/06/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus		30/06/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus		28/06/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	10 to 29	13/08/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	10 to 29	01/06/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus		15/06/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus		24/07/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus		27/07/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus		15/06/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus		01/08/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	10 to 29	01/06/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus		07/09/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	1 Adult	10/08/1997	SP5722	1 km record	Bicester - S W	field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	2 to 9	18/05/1997	SP5723	1 km record	Bicester N W	field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	1 Adult	06/07/1997	SP5823	1 km record	Bicester N	field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	1 Individual	06/08/2013	SP597223		Gavray Drive Meadows	field record	LN			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	1 Individual	01/08/2013	SP597223		Gavray Drive Meadows	field record	LN			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	2 Individuals	10/07/2013	SP597223		Gavray Drive Meadows	field record	LN			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	1 Individual	27/06/2013	SP597223		Gavray Drive Meadows	field record	LN			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	1 Individual	16/06/2013	SP597223		Gavray Drive Meadows	field record	LN			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	1 Individual	24/08/2013	SP597223		Gavray Drive Meadows	field record	LN			NERC-S41	RL-GB-post2001-NT
<i>Small Heath</i>	Coenonympha pamphilus	Adults	26/06/2002	SP598222		Gavray Drive Meadows		OLWS			NERC-S41	RL-GB-post2001-NT
<i>Wall</i>	Lasionmata megera		01/08/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Wall</i>	Lasionmata megera		13/08/1990	SP5622	1 km record		field record	BC			NERC-S41	RL-GB-post2001-NT
<i>Wall</i>	Lasionmata megera		22/08/1990	SP580212			field record	BC			NERC-S41	RL-GB-post2001-NT
<b>Invertebrates - Moths</b>												
<i>Blood-Vein</i>	Timandra comae	1 Individual	27/06/2013	SP597223		Gavray Drive Meadows	field record	LN			NERC-S41	



Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
<i>Cinnabar</i>	Tyria jacobaeae	1 Larva	10/08/2013	SP597223		Gavray Drive Meadows	field record	LN			NERC-S41	
<b>Mammals - Terrestrial (bats)</b>												
Noctule Bat	Nyctalus noctula	2 Flying	01/01/2013-31/12/2013	SP57002190		Near Bicester		EC	HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
Pipistrelle Bat species	Pipistrellus	Droppings	08/07/2010	SP5830722278		St Edburg's Church, Bicester	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
Pipistrelle Bat species	Pipistrellus		28/01/2012	SP58812229		Bicester Town Council offices, Garth Park, Launton Road, Bicester, Oxon OX26 2PS	field record	MOP	HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
Common Pipistrelle	Pipistrellus pipistrellus		08/08/1995	SP560216		Chesterton	field record	NE	HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b		
Common Pipistrelle	Pipistrellus pipistrellus	<8 hunting	01/01/2013-31/12/2013	SP57002190		Near Bicester		EC	HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b		
Common Pipistrelle	Pipistrellus pipistrellus		03/08/2009-04/08/2009	SP584216		A41 Bridge, Bicester	aural bat detector	EC	HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b		
Soprano Pipistrelle	Pipistrellus pygmaeus	1 Flying	01/01/2013-31/12/2013	SP57002190		Near Bicester		EC	HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
Long-eared Bat species	Plecotus	Droppings	08/07/2010	SP5830722278		St Edburg's Church, Bicester	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
Brown Long-eared Bat	Plecotus auritus		28/01/2012	SP58812229		Bicester Town Council offices, Garth Park, Launton Road, Bicester, Oxon OX26 2PS	field record	MOP	HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	
<b>Mammals - Terrestrial (excl. bats)</b>												
European Otter	Lutra lutra	Droppings	24/07/2009-18/08/2009	SP57412008		Gagle Brook, south of Chesterton	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	RL-Global-post2001-NT
European Otter	Lutra lutra	Droppings	24/07/2009-18/08/2009	SP57662053		Bicester Wetland Reserve	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	RL-Global-post2001-NT
European Otter	Lutra lutra	Droppings	24/07/2009-18/08/2009	SP57672052		Bicester Wetland Reserve	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	RL-Global-post2001-NT
European Otter	Lutra lutra	Droppings	24/07/2009-18/08/2009	SP57672069		Bicester Wetland Reserve	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	RL-Global-post2001-NT
European Otter	Lutra lutra	Droppings	24/07/2009-18/08/2009	SP57722106		Bicester Wetland Reserve	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	RL-Global-post2001-NT
European Otter	Lutra lutra	Droppings	24/07/2009-18/08/2009	SP57732091		Bicester Wetland Reserve	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	RL-Global-post2001-NT
European Otter	Lutra lutra	Droppings	24/07/2009-18/08/2009	SP58272189		Bicester Village Stream, Bicester Village Retail Park	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	RL-Global-post2001-NT
European Otter	Lutra lutra	Droppings	24/07/2009-18/08/2009	SP58272190		Bicester Village Stream, Bicester Village Retail Park	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	RL-Global-post2001-NT
European Otter	Lutra lutra	Droppings	24/07/2009-18/08/2009	SP58292138		Bicester Wetland Reserve	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	RL-Global-post2001-NT
European Otter	Lutra lutra	Droppings	24/07/2009-18/08/2009	SP58392185		Bicester Village Stream, Bicester Village Retail Park	dung/droppings/fr ass/pellet, etc.	EC	HabDir-A2np HabDir-A4	HabReg-Sch2 WACA-Sch5-s9.4b/s9.4c/s9.5a/s9.5b	NERC-S41	RL-Global-post2001-NT

Taxon Name	Common Name	Abundance / Sex / Stage	Date	Grid Ref.	Grid Ref. Qualifier	Location	Type of Record	Data Origin	European Directives	UK Legislation	NERC s41	Other Designations
<i>Eurasian Badger</i>	<i>Meles meles</i>	1	30/04/2007	SP561211		A41 southbound, just before Chesterton overpass	dead on road	LN				Badgers-1992
<i>Eurasian Badger</i>	<i>Meles meles</i>	1	17/03/2009	SP564204		A41 Northbound	dead on road	LN				Badgers-1992
<i>Eurasian Badger</i>	<i>Meles meles</i>	1	31/03/2010	SP567206		A41, southbound	dead on road	LN				Badgers-1992
<i>Eurasian Badger</i>	<i>Meles meles</i>	Signs	24/07/2009-18/08/2009	SP574200		Gagle Brook, south of Chesterton	tracks/trail	EC				Badgers-1992
<i>Eurasian Badger</i>	<i>Meles meles</i>		31/03/2004	SP575215		A41	dead on road	DBRC				Badgers-1992
<i>Eurasian Badger</i>	<i>Meles meles</i>	2 Latrines	30/09/2014	SP5868720007		Plantation off Circular Rd, Bicester		MOP				Badgers-1992
<i>Eurasian Badger</i>	<i>Meles meles</i>		2007	SP59142084		Woodland adjacent to Wretchwick Lodge, Ambosden		MOP				Badgers-1992
<i>Eurasian Badger</i>	<i>Meles meles</i>	1 Dead	16/10/2012	SP593223		AA421, Bicester	field record	LN				Badgers-1992
<i>Eurasian Badger</i>	<i>Meles meles</i>	1 Dead	02/02/2012	SP595222		Gavray Drive, Bicester	field record	MOP				Badgers-1992
<i>Eurasian Badger</i>	<i>Meles meles</i>		24/07/2009-18/08/2009	SP59582223		Gavray Drive Meadows., Upper Langford Brook	field record	EC				Badgers-1992
<i>Polecat</i>	<i>Mustela putorius</i>	1 Dead	21/04/2012	SP574214		A34 near Bicester	dead on road	MOP	HabDir-A5	HabReg-Sch4	NERC-S41	
<i>Polecat</i>	<i>Mustela putorius</i>	1	14/10/2006	SP596208		A41, nr. entrance to M.O.D. Bicester Graven Hill	dead on road	LN	HabDir-A5	HabReg-Sch4	NERC-S41	
<i>West European Hedgehog</i>	<i>Erinaceus europaeus</i>	2 alive	2013	SP565228		Confidential	hibernating	PTES				NERC-S41
<i>West European Hedgehog</i>	<i>Erinaceus europaeus</i>	2	31/10/2006	SP569232		Bicester	field record	PTES				NERC-S41
<i>West European Hedgehog</i>	<i>Erinaceus europaeus</i>	3	03/11/2006	SP572226		Bicester	field record	PTES				NERC-S41
<i>West European Hedgehog</i>	<i>Erinaceus europaeus</i>	3 alive	2014	SP581230		Confidential	hibernating	PTES				NERC-S41
<i>West European Hedgehog</i>	<i>Erinaceus europaeus</i>	1	18/10/2006	SP582222		Bicester	field record	PTES				NERC-S41
<i>West European Hedgehog</i>	<i>Erinaceus europaeus</i>	1	30/10/2006	SP582229		Bicester	field record	PTES				NERC-S41
<i>West European Hedgehog</i>	<i>Erinaceus europaeus</i>	1	07/11/2006	SP591232		Churchill Road, Bicester	field record	PTES				NERC-S41
<i>West European Hedgehog</i>	<i>Erinaceus europaeus</i>	1 Dead	14/05/2006	SP592226		100m SW of bridge over Bicester Ring Rd, between Gavray Drive & Railway	dead on road	LN				NERC-S41
<i>European Water Vole</i>	<i>Arvicola amphibius</i>		Jun-03	SP580230		Bicester		BBOWT				WACA-Sch5-s9.1k/s9.1t/s9.2/s9.4a/s9.4b/s9.4c/s9.5a/s9.5b
<i>European Water Vole</i>	<i>Arvicola amphibius</i>		Sep-03	SP581228		River Bure, Bicester		BBOWT				WACA-Sch5-s9.1k/s9.1t/s9.2/s9.4a/s9.4b/s9.4c/s9.5a/s9.5b
<i>European Water Vole</i>	<i>Arvicola amphibius</i>		Feb-00	SP595226		Ray Catchment		BBOWT				WACA-Sch5-s9.1k/s9.1t/s9.2/s9.4a/s9.4b/s9.4c/s9.5a/s9.5b
<b>Reptiles</b>												
<i>Slow-worm</i>	<i>Anguis fragilis</i>	1 Immature	25/09/2009	SP598223		Gavray Drive Meadows	field record	EC				WACA-Sch5-s9.1k/s9.5a/s9.5b
<i>Slow-worm</i>	<i>Anguis fragilis</i>	2 Females	22/09/2009	SP598223		Gavray Drive Meadows	field record	EC				WACA-Sch5-s9.1k/s9.5a/s9.5b
<i>Slow-worm</i>	<i>Anguis fragilis</i>	1 Female; 1 Immature	23/09/2009	SP598223		Gavray Drive Meadows	field record	EC				WACA-Sch5-s9.1k/s9.5a/s9.5b
<i>Grass Snake</i>	<i>Natrix natrix</i>	1	Summer 1994	SP56022167		Barnside, Alchester Rd, Chesterton		ORAG				WACA-Sch5-s9.1k/s9.5a/s9.5b
<i>Grass Snake</i>	<i>Natrix natrix</i>	1	Summer 2000	SP56022167		Bignell Park, Chesterton		ORAG				WACA-Sch5-s9.1k/s9.5a/s9.5b
<i>Grass Snake</i>	<i>Natrix natrix</i>		28/07/1987	SP572210		Roman Road by Hayfield	field record	BBOWT				WACA-Sch5-s9.1k/s9.5a/s9.5b

## Status Key. Produced January 2014 by Thames Valley Environmental Records Centre

### EUROPEAN DIRECTIVES

- BirdsDir-A1 - Species listed on Annex 1 of EC Directive 79/409/EEC on the Conservation of Wild Birds.
- HabDir-A2, HabDir-A4 & HabDir-A5 - Annex 2 and Annexes 4/5 respectively of the EC Habitats Directive. This is the Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora.

### UK LEGISLATION: CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2010

This legislation translates the European Habitats Directive (see above) into UK law where species are listed in Schedule 2 and Schedule 4. Species are tagged as HabReg-Sch2 or HabReg-Sch4.

### UK LEGISLATION: WILDLIFE AND COUNTRYSIDE ACT 1981

#### Schedule 1 Wild Birds

prohibits the intentional killing, injuring or taking of any wild bird and the taking, damaging or destroying of the nest (whilst being built or in use) or eggs. It prohibits possession of wild birds (dead or alive) or their eggs. In addition:

- WACA-Sch1(pt 1) – There are additional penalties for offences relating to birds on this schedule and it is also an offence to disturb such birds at the nest or with dependent young.
- WACA-Sch1(pt 2) – Covers the protection of birds which may be killed during the open season.

(Please note that some schedule 1 bird records will refer to species that do not breed in the county, e.g. over-wintering birds such as Redwing or Fieldfare. Although we include them in the annotated records, only they and their nests, eggs and dependent young enjoy extra protection under the W&C 1981 act. If you are in any doubt about the breeding status of a bird please contact us at TVERC)

#### Schedule 5 Wild Animals

- WACA-Sch5\_sect9.1 – covers intentional killing injuring or taking (species are covered by all or some of these)
- WACA-Sch5\_sect9.2 – Covers possession or control (live or dead animal, part or derivative)
- WACA-Sch5\_sect9.4a – Covers damage to or destruction of any structure or place used by a scheduled animal for shelter or protection.
- WACA-Sch5\_sect9.4b – Covers disturbance of animal occupying such a structure or place.
- WACA-Sch5\_sect9.4c – Covers obstruction of access to any structure or place which any such animal uses for shelter or protection
- WACA-Sch5\_sect9.5a – Covers selling, offering for sale, possessing or transporting for the purpose of sale (live or dead animal, part or derivative).
- WACA-Sch5\_sect9.5b – Covers advertising for buying or selling such things.

#### Schedule 8 Wild Plants

- WACA-Sch8 - Covers any picking, uprooting or destruction of plants listed on the Schedule. It also prohibits the sale, etc, or possession for the purpose of sale of any plants on the Schedule.

### PRIORITY NERC S.41 2006

Species listed in Section 41 of the Natural Environment and Rural Communities Act 2006 as a species of principle importance. These are very similar to the list of UKBAP and have superseded them. Species are tagged NERC S.41.

### OTHER DESIGNATIONS: RED LISTS

**Global Red List Species** (tagged GlobalRed) - Species listed by the International Union for Conservation of Nature (IUCN) in the IUCN Red List of Threatened Species. Species included are from post 1994 and post 2001 lists.

**GB Red List Species** (tagged GBRed) - Species included in national red lists. Species included are from pre 1994 and post 2001 lists. Please note not all taxon groups are currently covered, for example fungi.

Abbreviations:

**EX** – Extinct A taxon is Extinct when there is no reasonable doubt that the last individual has died.

**EW** – Extinct in the Wild. Species known to survive only in cultivation, in captivity or as a naturalised population(s) well outside the past range.

**CR** – Critically Endangered (CR) Species facing an extremely high risk of extinction in the wild in the immediate future.

**EN** – Endangered: Species that are not Critically Endangered but is facing a very high risk of extinction in the wild in the near future.

**VU** – Vulnerable: A species is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future

**NT** – Near Threatened – A taxon considered to likely to become endangered in the near future.

**LR(cd)** – Lower risk (conservation dependent)

**DD** – Data deficient – A taxon with insufficient data to make an assessment of its risk of extinction.

**RE** – Regionally Extinct – Taxa that are considered extinct within the region but populations exist elsewhere in the world.

**Inde** – indeterminate – based on a pre 1994 category: Taxa which are known to be Endangered, Vulnerable or Rare but with insufficient data to place them in one of the categories.

**Insu** – Insufficiently known - based on a pre 1994 category which equates to data deficient.

Species included here are from information compiled by JNCC (The Joint Nature Conservation Committee).

### OTHER DESIGNATIONS: NATIONALLY NOTABLE SPECIES

This covers invertebrate species not falling within IUCN categories but never the less uncommon in Britain.

**Nationally Notable A** (Tagged Notable-A): Taxa which occur in <30 10 km (hectad) squares or for less well recorded groups within <7 vice counties.

**Nationally Notable B** (Tagged Notable-B): Taxa which don't fall within IUCN categories but are uncommon in Britain and occur in 31-100 10 km sq/ or for less or for less well recorded groups between 8 and 20 vice counties

**Notable** (Tagged Notable): Taxa known to be scarce (occurring in between 16 and 100 10km squares) but for which there is insufficient information to assign them to the above categories.

This designation comes from the National Biodiversity Network (NBN) species dictionary but is supported by JNCC.

#### OTHER DESIGNATIONS: NATIONALLY RARE OR SCARCE SPECIES

This designation covers species that are recognised to occur in only a few locations in Britain.

**Rare** (tagged as Status-NR) = occurring in 15 or fewer hectads (10 km squares) in the UK

**Scarce** (tagged as Status-NS) = occurring in 16 – 100 hectads in the UK.

#### OTHER DESIGNATIONS: BIRDS OF CONSERVATION CONCERN LISTS & RED LIST FUNGI

These lists were drawn up by leading governmental and non-governmental conservation organizations including the RSPB and British Trust for Ornithology. The most recent version was published in May 2009.

**Red List** (tagged Bird-Red) - species are those that are globally threatened, whose population or range has declined rapidly in recent years (i.e. by more than 50% in 25 years), or which have declined historically and not recovered.

**Amber List** (tagged Bird-Amber) - Amber list species are those whose population or range has declined moderately in recent years (by more than 25% but less than 50% in 25 years), those whose population has declined historically but recovered recently, rare breeders (fewer than 300 pairs), those with internationally important populations in the UK, those with localised populations, and those with an unfavourable conservation status in Europe.

**Red List Fungi** – This designation uses the Red Data List of Threatened British Fungi (preliminary assessment) by Shelley Evans (BMS Conservation Officer). Species are designated as:

**Fungi Red-CR** – Critically Endangered

**Fungi Red-EN** – Endangered

**Fungi Red-NT** – Near Threatened

**Fungi Red-VU** – Vulnerable

These follow current IUCN guidelines (2001) as closely as possible but with adaptations to take into account the fungal lifestyle and associated practicalities of fungal recording.

#### OTHER DESIGNATIONS: LOCAL BAP SPECIES

For any Local Authority that has drawn up a list of BAP species. Designations will only apply to species recorded from the Local Authority area.

Currently, only Bracknell Forest Council have such a BAP list and relevant records are tagged Bracknell LBAP.

#### INVASIVE NON-NATIVE SPECIES

Species appearing on the Environment Agency list of non-native invasive species 2014. Species may have the following designations:

**Priority Species:** Species affecting EA interests the most

**Rapid Response Species:** Very invasive species that are not yet established

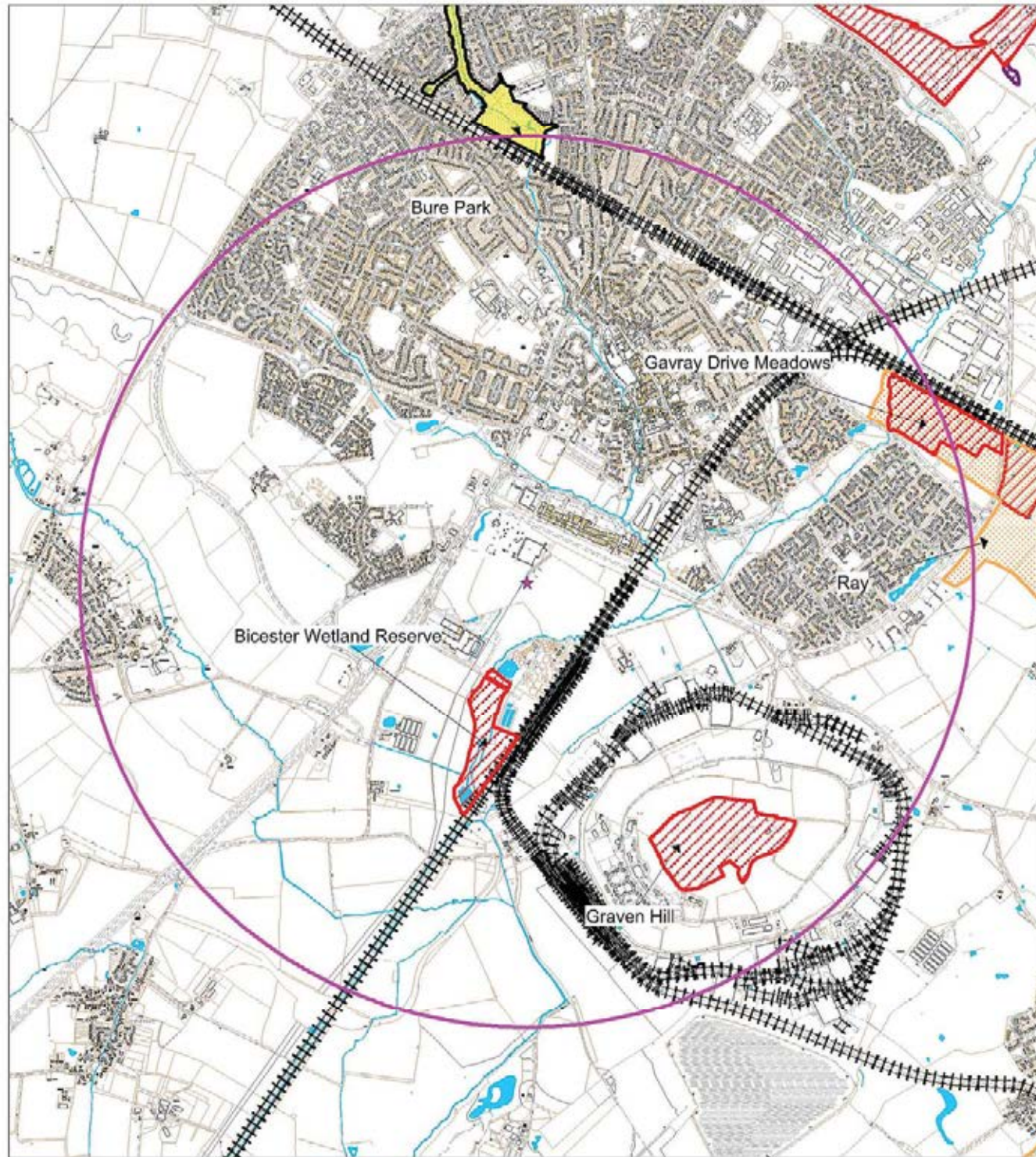
## DATA ORIGIN KEY

Data Origin Abbreviation	Origin Details
AN	Abingdon Natural History Society
ANHSO	Ashmolean Natural History Society (& Rare Plant Group)
BAT	Bat Licence Returns (from licenced Bat Recorders)
BBG	Binfield Badger Group
BBOWT	Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust
BC	Butterfly Conservation (includes Upper Thames and National Data)
BDS	British Dragonfly Society
BENHS	British Entomological Natural History Society
BFC	Bracknell Forest Council
BIG	Berkshire Invertebrate Group
BLWS	Berkshire Local Wildlife Sites Project
BMG	Berkshire Mammal Group
BOC	Berkshire Bird Clubs
BOS	Banbury Ornithological Society
BRAG	Berkshire Reptile & Amphibian Group
BRC	Biological Record Centre (Monk's Wood)
BSBBG	Berks & South Berks Bat Group
BSBI	Botanical Society of the British Isles
BTC	Banbury Town Council
BTO	British Trust for Ornithology
BUWG	Bracknell Urban Wildlife Group
BWARS	Bees Wasps & Ants Recording Society
CBT	Childe Beale Trust
CDC	Cherwell District Council
COS	County Ornithological Services (also known as BCS)
CRPG	Cotswold Rare Plant Group
EA	Environment Agency (formally the National Rivers Authority)
EC	Professional Ecological Consultant
ET	The Earth Trust (formally the Northmoor Trust)
FLC	Friends of Longcot Churchyard
FSO	Fungus Survey of Oxfordshire
FWAG	Farmland Wildlife Advisory Group
GCN	GCN Licence Return Records
HA	Highways Agency
LN	Local/National Expert (known to TVERC)
LWVP	Lower Windrush Valley Project
MGLG	Moor Green Lakes Group
MOP	Member of the Public
NDD	National Dormouse Database
NE	Natural England/EN/NCC
NFC	Newbury Field Club
NHM	Natural History Museum
NPD	National Ponds Database
NRG	Newbury Ringing Group
NT	National Trust
OBG	Oxfordshire Bat Group
OBRC	Oxfordshire Biological Record Centre (TVERC precursor)

## DATA ORIGIN KEY (Contd)

Data Origin Abbreviation	Origin Details
OBU	Oxford Brookes University
OCC	Oxfordshire County Council
OFG	Oxfordshire Flora Group
OLWS	Oxfordshire Local Wildlife Sites Project
OMG	Oxfordshire Mossing Group
OOS	Oxfordshire Ornithological Society
ORAG	Oxfordshire Reptile & Amphibian Group
OS	Otter Spotter Project
OUNHM	Oxford University Natural History Museum
OUWG	Oxford Urban Wildlife Group
OX	Oxford City Council
PC	Pond Conservation
PL	Plantlife
PTES	People's Trust for Endangered Species
RBC	Reading Borough Council
RBWM	Royal Borough of Windsor & Maidenhead
RDNHS	Reading and District natural History Society
RM	Reading Museum
RSPB	Royal Society for the Protection of Birds
RUWG	Reading Urban Wildlife Group
RWP	Reading Woodlands Plan
SODC	South Oxfordshire District Council
SW	Shotover Wildlife
TVERC	Thames Valley Environmental Record Centre
TVFG	Thames valley Fungus Group
TW	Thames Water
U	Unknown
UKWOT	UK Wild Otter Trust
VCH	Victoria County History (historical records)
VWH	Vale of White Horse District Council
VWT	Vincent Wildlife Trust
WB	West Berkshire District Council
WBC	Wokingham Borough Council
WFG	Wychwood Flora Group
WIA	Wildlife in Ascot Group
WILDCRU	Wildlife Conservation Research Unit
WMUWG	Windsor & Maidenhead Urban Wildlife Group
WODC	West Oxfordshire District Council
WS	Wytham Survey
WWT	Wildfowl & Wetlands Trust
YE	Dick Greenaway, concerning land owned by Yattendon Estate

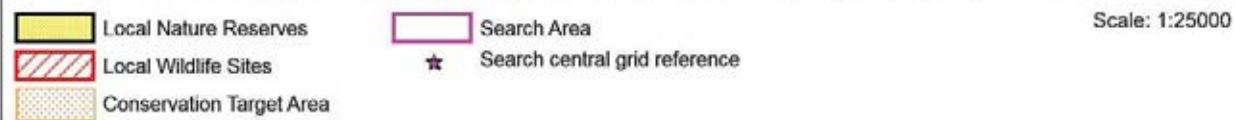
## Bicester Designated Wildlife Sites



### Bure Park Local Nature Reserve - Brief Description

Habitats there include grass meadow, young broad-leaved woodland, hedges and scrub. A small river (the Bure) runs through the site, feeding a small pond which is home to great crested newts. A balancing pond at one end of the Reserve is fed by run-off from the area.

[http://www.lnr.naturalengland.org.uk/Special/lnr/lnr\\_details.asp?C=0&N=burepark&ID=1288](http://www.lnr.naturalengland.org.uk/Special/lnr/lnr_details.asp?C=0&N=burepark&ID=1288)



## Oxfordshire Local Wildlife Site Citation

### BICESTER WETLAND RESERVE

Site Code: 52Q16

Grid Reference: SP577262

Area (ha): 7.8

Local Authority: Cherwell

Last Survey Date(s): 12/08/2013

Date Selected or Reconfirmed: 2014

### Site Description

This site is managed by Banbury Ornithological Society in co-operation with Thames Water Utilities Ltd. This site is mostly maintained as wet grassland by outflow from the sewage works. It includes a small area of reedbed, open water (including shallow water for waders and deeper areas for other species), wet ditches, banks with tall herb and a dry grassland field to the east. The margins around the open water have swamp vegetation and areas of wet grassland. There is abundant hard rush, reed sweet-grass, reed canary-grass and great willowherb with floating sweet-grass, bulrush and watermint. A series of ditches control the water levels and have wetland plants including common spike-rush and common marsh-bedstraw.

The site is important for over-wintering wildfowl including teal, pintail, pochard, wigeon and gadwall (all Birds of Conservation Concern Red listed). Amber listed species include snipe and water rail. It is also very important for birds which require wet grassland such as jack snipe, little ringed plover and green plover.

SECTION 41 HABITATS OF PRINCIPAL IMPORTANCE: Reed bed, coastal and floodplain grazing marsh

SECTION 41 SPECIES OF PRINCIPAL IMPORTANCE: curlew, bittern, common linnet, twite, cuckoo, black-tailed Godwit, yellow wagtail, willow tit, marsh tit, lapwing, reed bunting,

RED DATA BOOK SPECIES: none

NATIONALLY SCARCE SPECIES: none

BIRDS OF CONSERVATION CONCERN:

Red list: lapwing, linnet, bittern, twite, cuckoo, black-tailed Godwit, yellow wagtail, willow tit, marsh tit, dunlin, fieldfare, turtle dove and starling

Amber list: common sandpiper, kingfisher, northern pintail, northern shoveler, teal, wigeon, mallard, gadwall, greylag goose, common swift, pochard, tufted duck, house martin, little egret, reed bunting, merlin, common snipe, jack snipe, grey wagtail, curlew, willow warbler, green woodpecker, golden plover,

sand martin, common tern, common whitethroat, little grebe, common shelduck, green sandpiper, common redshank, barn owl, water rail, meadow pipit, common ringed plover, common kestrel, oystercatcher, swallow, black-headed gull, red kite, northern wheatear, bearded tit and wood sandpiper

TYPICAL SPECIES OF LOWLAND FEN: common spike-rush, floating sweet-grass, reed sweet-grass, reed canary-grass, bulrush, brooklime, hedge bindweed, great willowherb, water mint, bittersweet and common marsh bedstraw, purple loosestrife and wild angelica.

## Oxfordshire Local Wildlife Site Citation

### GRAVEN HILL

Site Code: 52V01

Grid Reference: SP588209

Area (ha): 16.3

Local Authority: Cherwell

Last Survey Date(s): 14<sup>th</sup> July 2011

Date Selected or Reconfirmed: 2011

### Site Description

Graven hill Wood caps a low rounded hill on heavy soil. Earthworks in the wood suggest that the area was formerly less wooded, at least in the Saxon period. The site is on a Ministry of Defence site close to Bicester. It caps a low rounded hill on heavy clay soil. Earthworks in the wood suggest that the area was formerly less wooded, at least in Saxon times. It is oak and ash woodland and has a mixed shrub layer including locally abundant hazel with hawthorn, English elm, Midland hawthorn, field maple and blackthorn.

The field layer has abundant dog's mercury, pendulous sedge and tufted hair-grass with false brome, wood meadow-grass, common dog violet, primrose, enchanter's nightshade and ground ivy. There are small amounts of hairy brome, giant fescue, wood millet, remote sedge, wood sedge, bugle, yellow archangel and three-veined sandwort. To the east the woodland has been thinned and the shrub layer is sparse. Here, there are locally abundant bluebells.

SECTION 41 HABITATS OF PRINCIPAL IMPORTANCE: Lowland Mixed Deciduous Woodland

SECTION 41 SPECIES OF PRINCIPAL IMPORTANCE: none

RED DATA BOOK SPECIES: none

NATIONALLY SCARCE SPECIES: none

BIRDS OF CONSERVATION CONCERN:

Red list: grasshopper warbler

Amber list: willow warbler

### ANCIENT WOODLAND INDICATOR SPECIES:

These are hairy brome, remote sedge, wood sedge, pendulous sedge, Midland hawthorn, spurge-laurel, creeping soft-grass, bluebell, holly, yellow archangel, yellow pimpernel, wood millet, three-nerved sandwort, wood meadow-grass, aspen, barren strawberry, primrose, early dog-violet, field rose and bush vetch.

There are previous records for wood anemone (2002), blackcurrant (1987), red currant (2002), goldilocks buttercup (1987), narrow-leaved everlasting pea (2002) and pignut (1987).

## Oxfordshire Local Wildlife Site Citation

### GAVRAY DRIVE MEADOWS

Site Code: 52W01

Grid Reference: SP595226

Area (ha): 15.2

Local Authority: Cherwell

Last Survey Date(s): February 2014

Date Selected or Reconfirmed:

### Site Description

These meadows form a mosaic of small damp fields with ponds, divided by thick hedges with old trees. Most of the fields are probably former hay meadows over medieval ridge and furrow field patterns, and have a sward mostly dominated by tufted hair-grass with some meadow foxtail and meadow barley. However, fields 5 and 6 appear to be old pasture, with ragged robin, dropwort, devil's-bit scabious and common spotted orchid. Fields 7, 11 and 12 contain devil's-bit scabious and betony. Great burnet is frequent in fields 7 and 11, and scattered in fields 12, 14 and 16. Sneezewort and pepper saxifrage were only found in field 11. Common marsh bedstraw, bugle, greater bird's-foot trefoil, common knapweed and short-fruited willowherb are occasional throughout the fields. There is a very good range of rushes and sedges across the site, with nine species of sedge: glaucous, common, carnation, brown, hairy, false fox, spiked, slender tufted and oval. Grasses include yellow oat-grass, sweet vernal grass, tall fescue, meadow fescue and red fescue. In the drier areas, slightly acid conditions are indicated by frequent tormentil, lesser stitchwort and sweet vernal grass, especially in fields 5, 6, 14 and 15.

Most of the ponds in the western half of the site are shaded and/or only damp in summer. They have a species-poor vegetation of compact rush, plicate sweet-grass and tufted water-forget-me-not. CPM surveyed the ponds on the west side of the north-south road and reported great crested newt (a priority Biodiversity Action Plan species) in 3 ponds and a channel. Smooth newts were found in all ponds and the channel, and one palmate newt was recorded in field 9. The large water-filled pond in field 14 (on the eastern side of the road) contains greater reedmace, gypsywort, marsh foxtail, tufted water-forget-me-not, sharp-flowered rush and soft rush. The brook running along the western margin of the County Wildlife Site contains reed canary-grass, redshank, water chickweed and greater water plantain.

The hedges across the entire site are mostly tall and thick, and contain hawthorn with bramble, blackthorn and elder, as well as occasional crack willow, field maple, oak, ash, crab apple, English elm, dogwood, holly, wayfaring tree, guelder rose, buckthorn, hop and honeysuckle. They are probably post-medieval, as they dissect the ridge and furrow pattern that runs through most of the fields. The hedge that separates fields 5 and 6 from

fields 7 and 12 is a double hedge, with black bryony, mature oak, ash and crack willow, including one large collapsed crack willow pollard. The hedge that runs along the eastern edge of fields 11 and 12 is also double. These double hedge lines include Midland hawthorn, wood meadow-grass, great hairy brome and three-nerved sandwort; all four are ancient woodland indicator species (characteristic of woodlands more than 400 years old). The gappy hedge line between fields 11 and 12 contains five large mature oaks. The hedges around fields 8 and 9 contain abundant English elm suckers, as well as hawthorn and bramble. The bullace plum (*Prunus domestica* ssp. *insititia*), a rare and declining species in the county, is found in the hedge between fields 8 and 9.

Numerous birds are using the proposed County Wildlife Site, including reed bunting (which was seen flying across the road between fields 14 and 4), willow warbler, garden warbler, blackcap, whitethroat, lesser whitethroat, chiffchaff, bullfinch, linnet, song thrush, yellowhammer, sedge warbler, hobby and kestrel. Common pipistrelle, noctule, *Myotis* sp. and, possibly, serotine bats were recorded foraging over the site (CPM). Butterflies include large skipper, ringlet, common blue, small heath and marbled white. Twenty-six species of ground beetles were found in fields 5, 6, 11 and 12, including the nationally scarce *Bembidion gilvipes*.

SECTION 41 HABITATS OF PRINCIPAL IMPORTANCE: lowland meadows

SECTION 41 SPECIES OF PRINCIPAL IMPORTANCE: Reed bunting (3 or 4 singing males), song thrush (2 or 3 singing males), bullfinch, linnet; great crested newt.

RED DATA BOOK SPECIES:

NATIONALLY SCARCE SPECIES: *Bembidion gilvipes* a ground beetle

BIRDS OF CONSERVATION CONCERN:

Red list: Bullfinch, reed bunting, song thrush, yellowhammer, linnet.

Amber list: Dunnock, willow warbler.

TYPICAL SPECIES of LOWLAND MEADOW: Great burnet, greater bird's-foot trefoil, betony, cuckooflower, devil's-bit scabious, sneezewort, pepper saxifrage, brown sedge, carnation sedge, common sedge and meadow barley.



## GUIDANCE ON THE VARIOUS STATUTORY AND NON-STATUTORY WILDLIFE SITE DESIGNATIONS.

### SITE DESIGNATIONS THAT PROTECT THE UK'S NATURAL HERITAGE THROUGH STATUTE

#### LOCAL NATURE RESERVES (LNRS) (IN ENGLAND, SCOTLAND AND WALES)

Under the National Parks and Access to the Countryside Act 1949 LNRS may be declared by local authorities after consultation with the relevant statutory nature conservation agency. LNRS are declared and managed for nature conservation, and provide opportunities for research and education, or simply enjoying and having contact with nature.

#### NATIONAL NATURE RESERVES (NNRS)

NNRs contain examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats or to provide special opportunities for scientific study of the habitats communities and species represented within them.

NNRs are declared by the statutory country conservation agencies under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981. In Northern Ireland, Nature Reserves are designated under the Amenity Lands Act (Northern Ireland) 1965.

#### RAMSAR SITES

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. Originally intended to protect sites of importance especially as waterfowl habitat, the Convention has broadened its scope over the years to cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. The Convention adopts a broad definition of wetland, namely "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres". Wetlands "may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands".

There is only one Ramsar site in Berkshire or Oxfordshire, South West London Waterbodies.

### Ray CTA (Conservation Target Area)

The alluvial floodplain of the River Ray extending along a number of small tributary streams and including some areas of land between these streams. This area extends into Buckinghamshire. The area extends onto the clay to included known areas of wet grassland and the main areas of ridge and furrow.

**Joint Character Area:** Thames and Avon Vales

**Landscape Types:** Alluvial Lowland with some areas of Clay Vale.

**Geology:** Mainly alluvium along the Ray. Alluvium is also present in narrow bands along the small streams and there are Oxford Clay mudstones away from the streams and river.

**Topography.** Flat riverside land. **Area of CTA:** 1192 hectares

#### Biodiversity:

- Lowland Meadow. The key habitat in this area. It is found in a number of SSSIs and Local Wildlife Sites mainly at least partly on the alluvium. North-west of Blackthorn Hill there is a larger group of meadows which are largely on the Oxford Clay. Remnants of this habitat are found elsewhere especially between Bicester and Blackthorn Hill and in some meadows in Buckinghamshire including BBOWT's recent addition to their Upper Ray Meadows Reserve at Leaches Farm.
- Wet Grassland/Floodplain Grazing Marsh. Wet grassland is found in meadows along with lowland meadow habitat with remnants elsewhere. Parts of the BBOWT Upper Ray Reserves have been restored to floodplain grazing marsh.
- Hedgerows. Some rich and well structured hedgerows with brown and black hairstreak.
- Ponds at Leaches Farm BBOWT reserve.
- Other Species: true fox sedge is found in a number of sites in the area.

**Access:** Largely restricted to bridleways and footpaths. There are a number of BBOWT nature reserves. Dorothy Bolton Meadow & Leaches Meadow currently have no public access, whilst Long Herdon & Grange are accessed via a public footpath. Access routes to a further two BBOWT reserves at Cow Leys and Leaches Farm are by existing public footpaths.

**Archaeology:** Extensive ridge and furrow.

#### Oxfordshire Biodiversity Action Plan Targets associated with this CTA:

1. Lowland meadow – management<sup>1</sup>, restoration and creation (with a focus on MG4 hay meadows).
2. Floodplain grazing marsh - management, restoration and creation (with a focus on breeding waders).
3. Reedbed – creation.
4. Ponds – creation (particularly of pond complexes).
5. Hedgerows – management (good management of existing hedgerows on short and long-term rotation, which will benefit brown and black hairstreaks and other wildlife).
6. Rivers – management and restoration (resource protection of watercourses to maintain and improve water quality).

<sup>1</sup> "Management" implies both maintaining the quantity, and maintaining and improving the quality of existing BAP habitat and incorporates the following target definitions: "Maintaining extent" and "Achieving Condition".

## **SITES OF SPECIAL SCIENTIFIC INTEREST (SSSI) (ENGLAND, SCOTLAND AND WALES)**

The SSSI series has developed since 1949 as the national suite of sites providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. These sites are also used to underpin other national and international nature conservation designations. Most SSSIs are privately-owned or managed; others are owned or managed by public bodies or non-government organisations.

Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs have been renotified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and the Nature Conservation (Scotland) Act 2004.

## **SPECIAL AREAS OF CONSERVATION (SAC) AND SITES OF COMMUNITY IMPORTANCE (SCI)**

SACs are designated under the EC Habitats Directive. SACs are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs in terrestrial areas and territorial marine waters out to 12 nautical miles are designated under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). New and/or amended Habitats sites which have been submitted to the European Commission by Government, but not yet formally adopted by the Commission, are referred to as candidate Special Areas of Conservation (cSACs). Sites which have been adopted by the EC, but not yet formally designated by governments of Member States are known as Sites of Community Importance (SCIs). In the UK, designation of SACs is devolved to the relevant administration within each country.

SACs, together with SPAs, form the Natura 2000 network.

## **SPECIAL PROTECTION AREAS (SPA)**

SPAs are classified by the UK Government under the EC Birds Directive. SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union. SPAs in terrestrial areas and territorial marine waters out to 12 nautical miles are classified under the Wildlife and Countryside Act 1981.

SPAs, together with SACs, form the Natura 2000 network.

## **NON-STATUTORY NATURAL HERITAGE CONSERVATION DESIGNATIONS**

### **LOCAL WILDLIFE SITES**

Local authorities for any given area may designate certain areas as being of local conservation interest. The criteria for inclusion, and the level of protection provided, if any, may vary between areas. Most individual counties have a similar scheme, although they do vary.

Most Local Wildlife Sites systems involve a panel of ecologists and others in the development of local criteria and the selection of the sites. Panels usually include a local government ecologist, an Natural England representative, the Local Wildlife Trust, the Local Environmental Record Centre and sometimes include a representative of local landowners and local naturalists.

These sites, which may be given various titles such as 'County Wildlife Sites' (CWS), 'Local Wildlife Sites' (LWS), 'Local Nature Conservation Sites' (LNCS), 'Sites of Importance for Nature Conservation' (SINCs), or Sites of Nature Conservation Importance' (SNCIs), together with statutory designations, are defined in local plans under the Town and Country Planning system and the National Planning Policy Framework and are a material consideration when planning applications are being determined.

As part of a national standardisation process these sites have recently been renamed as Local Wildlife Sites in Oxfordshire and Berkshire. Previously they were known as County Wildlife Sites in Oxfordshire and Wildlife Heritage Sites in Berkshire. Although the use of these names, especially in citations and descriptions, is being edited and replaced with Local Wildlife Sites or LWS it is likely that some references will remain to these former names until this is complete.

### **PROPOSED LOCAL WILDLIFE SITES AND EXTENSIONS**

These are also included on designated sites maps. They are areas thought to include important areas of UKBAP habitat or priority or protected species populations. Extensions are likely to have similar habitats to the adjacent Local Wildlife Sites. Local Authorities are made aware of these sites. They will not have been fully surveyed and taken to the selection panel as yet.

### **NGO PROPERTIES / NATURE RESERVES**

A variety of non-governmental organisations such as the John Muir Trust, Plantlife, the Royal Society for the Protection of Birds, Wildlife Trusts and Woodland Trust own or manage nature reserves or other areas of land that are important for biodiversity. These sites may be intended primarily for nature conservation, or for other purposes such as protection of landscape features or the provision public access to the countryside. These areas of themselves have no statutory basis, but a large number are also designated SSSIs / NNRs / SPAs / SACs / Ramsar sites, etc.

In Berkshire and Oxfordshire, BBOWT (Berks, Bucks & Oxon Wildlife Trust), Woodland Trust and RSPB sites fall into this category.

**Appendix 4 – Figures and Target Notes**

**LOCAL GEOLOGICAL SITES (LGS)**

Local Geological Sites formerly known as Regionally Important Geological and Geomorphological Sites (RIGS) are the most important places for geology and geomorphology outside statutorily protected land such as Sites of Special Scientific Interest (SSSI). As part of a national standardisation process these sites have recently been renamed as Local Geological Sites in Oxfordshire and Berkshire. Sites are selected under locally-developed criteria, according to their value for education, scientific study, historical significance or aesthetic qualities. Whilst not benefiting from statutory protection, LGS are equivalent to Local Wildlife Sites, and "...consideration of their importance becomes integral to the planning process".

**OTHER SITES**

Occasionally other sites might be shown on maps. These are likely to be sites with some wildlife interest, usually managed by local groups, local authorities or town councils but which do not have a specific statutory or non-statutory designation.

Some local authorities within Oxfordshire and Berkshire have identified other sites which are protected through policies in their local plans, including sites of local importance to nature conservation (SLINCs) in oxford city and district wildlife sites in Cherwell. For SLINCs we only show sites on maps that are not local wildlife sites or proposed local wildlife sites.

**CONSERVATION TARGET AREAS/ BIODIVERSITY OPPORTUNITY AREAS**

These landscape scale areas have been identified as supporting high concentrations of UKBAP habitats and species populations and the potential to restore habitats at a landscape scale. These areas act as a focus for targeting resources into habitat management and restoration.

**ANCIENT WOODLAND**

Ancient woodland areas within Bracknell Forest and Wokingham Borough are from an updated layer of ancient woodland produced by TVERC for Bracknell Forest Council and Wokingham Borough Council in 2015-16. This data has been provided to Natural England but has not yet been made available and thus differs from that shown on the Magic Map Interactive Map. For information of the methodology for selecting ancient woodland areas please contact TVERC.

Target Notes	
No.	Description
1	Arable field in location that aerial photo implies was rough grassland.
2	Large log piles crated from clearance of this area of site and ditch banks
3	Large single mammal hole, likely outlier badger sett not currently occupied by badgers
4	Spoil heap and area of disturbed ground

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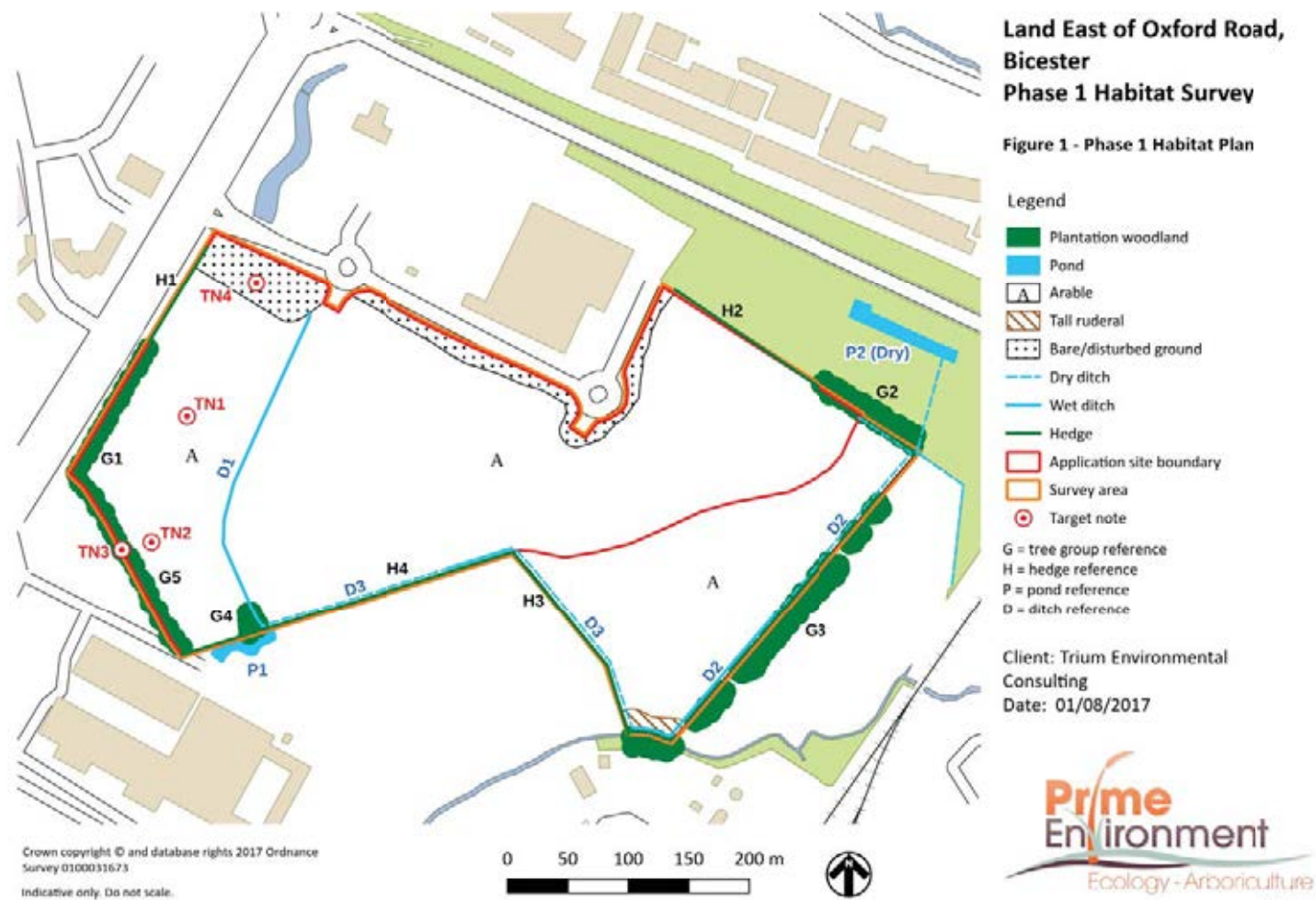
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# ES Volume II: Technical Appendices

## Appendix 11.2: Bat Survey Report

**Document Control**

Report Issue	Notes
01	Interim document to client
02	Survey results and analysis added
03	August and September Results added (September transect omitted)
04	September transect results added
05	
Managing Office	Derby

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## 1 Introduction

### 1.1 Terms of Reference

Prime Environment Limited (Prime Environment) was instructed by Trium Environmental Consulting LLP (the Client) to undertake bat activity surveys of Bicester Office Park adjoining Oxford Road and Lakeview Drive, Bicester, Oxfordshire (Ordnance Survey (OS) grid Reference SP 57958 21564) (The Site).

The Site is 12 hectares and comprises an arable field with rough grassland margins and hedgerows with trees. There is a ditch running across the Site in the west and dry and wet ditches at the field boundaries. The Survey Area is slightly larger than the Site (15 ha) as the Site does not include all of the field.

The project proposals are to develop the Site into a large business park with associated hard and soft landscaping. The application will be subject to a formal Environmental Impact Assessment (EIA).

The bat activity surveys were recommended following a Preliminary Ecological Appraisal<sup>1</sup> of the Study Area.

### 1.2 Aims and Objectives

The aims of the study were to:

- Identify the species of bat active within the Study Area
- Identify patterns of bat activity across the Study Area
- Quantify the levels of activity of bats.

Ecological information for the assessment was provided by bat transect and automated surveys.

Information regarding the habitats present within the Study Area and discussions and recommendations are presented in a separate report<sup>1</sup>.

---

<sup>1</sup> Prime Environment (2017). *Preliminary Ecological Appraisal, Bicester, 0217.0001, Rev 2.0*. Prime Environment: Cromford.

**Plate 1 - Aerial Photo**



Red = The Study Area, Blue = the Site.

**3 Method**

The survey methodology was based on the BCT guidelines<sup>2</sup> for a site of Medium Habitat Quality. Surveys were spread throughout the bat activity season with surveys being undertaken once per month. Surveyors involved with the bat surveys are listed in Table 1.

**Table 1. Surveyor details**

Name	Bat Licence	CIEEM membership level
Jon Moore	Class 2	Full MCIEEM
Jo Pedder	Class 2	Full MCIEEM
Hayley Farnell	Class 2	Full MCIEEM
Andy Swan	Class 2	Full MCIEEM

**3.1 Bats**

**3.1.1 Automated surveys**

Automated bat surveys were undertaken by experienced and licenced surveyors listed in Table 1. Automated surveys were undertaken using AnaBat Express automated bat detectors. These units automatically record bat echolocation calls in zero crossing format.

Detectors were deployed over at least five consecutive nights on three occasions over the main bat activity period (May to September) at four locations within the Study Area (see Figure 1). Detectors were programmed to start 30 minutes before sunset and stop at 30 minutes after sunrise each day. Survey dates are provided in Table 2. 15 nights of survey were completed.

**Table 2. Automated survey dates.**

Month	Date start	Date end	Consecutive nights
May	24/05/2017	29/05/2017	5
June	23/06/2017	28/06/2017	5
July	07/07/2017	12/07/2017	5
August	04/08/2017	09/08/2017	5
September	06/09/2017	11/09/2017	5
Total			15

**3.1.2 Transect surveys**

Transect bat surveys were undertaken by experienced and licenced surveyors listed in Table 1. Survey design was based on the BCT guidelines.

Walked transects were undertaken using AnaBat Express detectors. The units automatically recorded bat sound and tagged each call with the geographic location of the unit when it recorded each bat pass, and the routes taken by the surveyor. Surveyors were also equipped with heterodyne bat detectors to enable bat activity of interest to be noted along the route (important commuting routes, roosting behaviour etc.).

<sup>2</sup> Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London

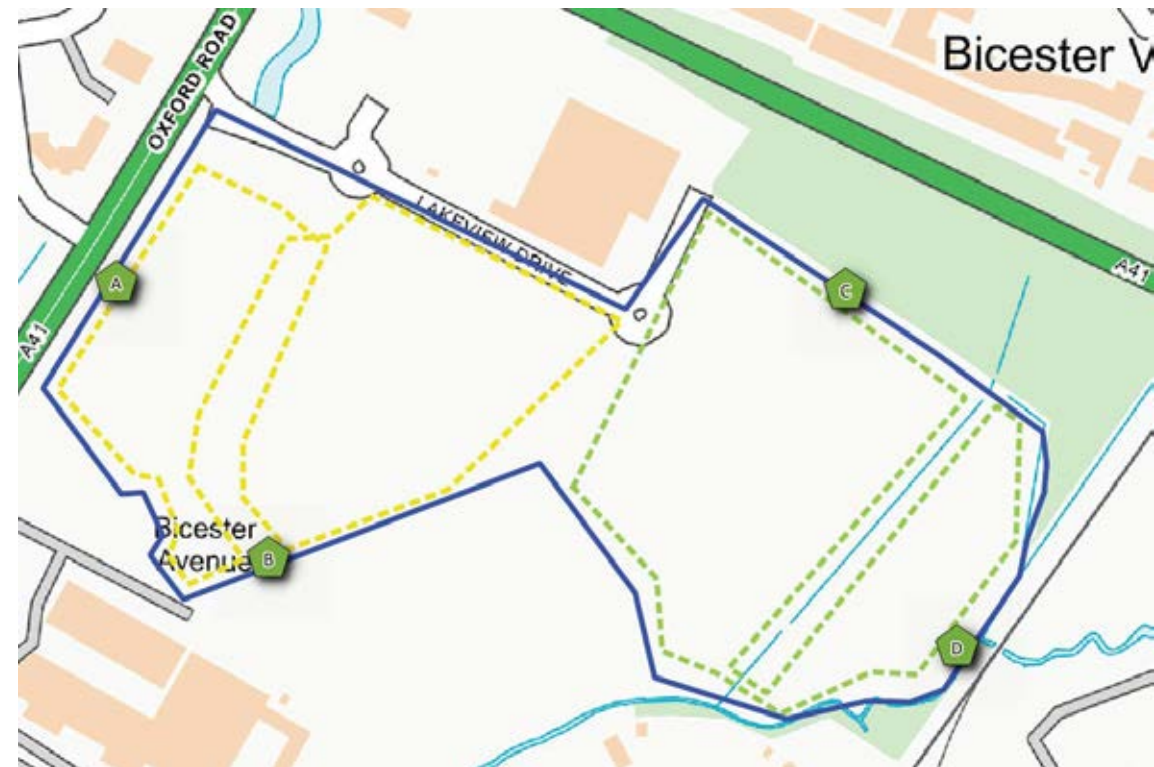


Two transect routes were used to cover the Study Area with two laps each visit. Routes were circular and the order and starting point changed on each trip (see Figure 1). The survey lasted approximately 2 hours (starting at sunset). Surveyors aimed to complete the same number of laps each visit, to standardise the walking pace. Routes were chosen to include a selection of habitats which represent the site, i.e. hedgerows, tree lines, ditches and within open fields.

Five surveys were conducted through the main bat activity season (May, June, July, August, September). Surveys began at sunset and lasted for approximately 2 hours. Dates are in Table 3. Temperature, wind speed and cloud cover were recorded at the beginning and end of the survey, along with any significant weather changes during the survey (e.g. rain).

**Table 3. Transect survey dates.**

Month	Date start
May	30/05/2017
June	28/06/2017
July	12/07/2017
August	10/08/2017
September	19/09/2017



**Figure 1. Plan showing routes of transect surveys, and the location of automated detectors.**

### 3.1.3 Data analysis

Analysis of recordings was undertaken by Jon Moore (MCIEEM, Class 2 Survey Licence 2015-15080-CLS-CLS, 7 years' experience of bat sonogram analysis). The AnlookW 4.2n sound analysis software package was used to analyse the recorded bat echolocation data. All

analysis was guided by the bat call parameters published by Russ (2012<sup>3</sup>). Species were attributed to each file or group of files to calculate activity levels for each species. Species labels/codes are provided in Table 4. Species status and detection rate of calls are provided in Table 5.

There is considerable crossover between echolocation calls within British bat species. Where calls could not be attributed to a specific species, genus level identification was used where possible, any calls which could not be attributed to a genus were labelled as an unclassified bat – this includes files where only social calls are present, files with only one or two calls present, and files with poorly recorded calls. Files with no bat calls present, were labelled as noise and omitted from the data.

A bat pass was defined as the presence of a bat echolocation call or series of calls within one file. Each file records up to a maximum of 15 seconds of activity. Bat passes were extracted from the data and activity levels were calculated and graphically presented using Excel 2016. Bat passes per night (bp/n) was used as an index of activity. This was calculated by dividing the total number of bat passes by the number of survey nights for each location.

**Table 4. Species labels**

Genus group	Species label	Common name	Scientific
Barbastella	BABA	Barbastelle	<i>Barbastella barbastellus</i>
Big bats	BIG	Serotine OR Nyctalus species	<i>Eptesicus serotinus</i> OR <i>Nyctalus</i> sp.
Big bats	EPSE	Serotine	<i>Eptesicus serotinus</i>
Myotis	MYSP	Myotis species	<i>Myotis</i> sp.
Big bats	NYLE	Leisler's	<i>Nyctalus leisleri</i>
Big bats	NYNO	Noctule	<i>Nyctalus noctula</i>
Big bats	NYSP	Nyctalus species	<i>Nyctalus</i> sp.
Pipistrellus	PINA	Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>
Pipistrellus	PIPI	Common pipistrelle	<i>Pipistrellus pipistrellus</i>
Pipistrellus	PIPN	Common OR Nathusius' pipistrelle	<i>Pipistrellus pipistrellus</i> OR <i>Pipistrellus nathusii</i>
Pipistrellus	PIPP	Common OR soprano pipistrelle	<i>Pipistrellus pipistrellus</i> OR <i>Pipistrellus pygmaeus</i>
Pipistrellus	PIPY	Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>
Plecotus	PAUR	Brown long-eared bat	<i>Plecotus auritus</i>
Plecotus	PAUS	Grey long-eared bat	<i>Plecotus austriacus</i>
Plecotus	PLSP	Plecotus bat	<i>Plecotus auritus</i> OR <i>Plecotus austriacus</i>
Rhinolophus	RHFE	Greater horseshoe	<i>Rhinolophus ferrumequinum</i>
Rhinolophus	RHHI	Lesser horseshoe	<i>Rhinolophus hipposideros</i>
Unclassified	NoID	Unclassified bat	<i>Chiroptera</i>
n/a	Noise	Non-bat sound	Non-bat sound

<sup>3</sup> Russ, J. (2012). *British Bat calls: A Guide to species Identification*. Pelagic Publishing: Exeter.

**Table 5. Species status and detection rate**

Common name	Conservation status <sup>a</sup> (Common, Rarer or Rare)	Echolocation call detection rate <sup>b</sup>
Barbastelle	Rare	Low
Greater horseshoe	Rare	Medium
Lesser horseshoe	Rare	Medium
Grey long-eared	Rare	Low
Brown long-eared	Common	Low
Serotine	Rarer	High
Myotis – Alcaho	Rare	Medium
Myotis – Bechstein’s	Rare	Low
Myotis – Brandt’s	Rarer	Medium
Myotis – Whiskered	Common	Medium
Myotis – Daubenton’s	Common	Medium
Myotis – Natterer’s	Common	Low
Leisler’s	Rarer	High
Noctule	Common	High
Soprano pipistrelle	Common	High
Common pipistrelle	Common	High
Nathusius’ pipistrelle	Rare	High
Unclassified bat	Unclassified	Unclassified
Non-bat sound	N/A	N/A

<sup>a</sup> There is no UK published list of the conservation status of bats. Status has been determined by applying a number of factors including: BCT statistics; Habitats Directive Annex II species; UK BAP Priority Species and the IUCN Red List.

<sup>b</sup> Detection rate is based on knowledge of echolocation characteristics, including amplitude and directionality. High detection calls are not directional and have a high amplitude and are attributed to bats which have a significant constant frequency component in their calls. Low detection calls are either directional or of low amplitude and often have significant frequency modulated components to their calls. Medium detection rates have components from both low and high rates.

## 3.2 Constraints

### 3.2.1 Age of data

Any ecology assessment must be considered as a ‘snapshot’ of the site conditions at the time of the survey; ecological constraints will change over time and therefore the findings of this report are considered to be valid for a period of one year from the report date, after which the report should be reviewed to assess whether updated surveys are necessary.

### 3.2.2 Determining numbers of bats

Whilst automated detectors are able to determine levels of bat activity at a survey location, it is not possible to use the data to accurately determine the number of bats present. For example, 10 bat passes may be from 10 different bats commuting past a detector; but equally could be one bat flying past the detectors multiple times.

### 3.2.3 Directional and low amplitude bat calls

Brown long-eared *Plecotus auritus* have been recorded during the surveys. Due to the low amplitude of the calls of these species, it is also likely that these bats are recorded less frequently than other bats with higher amplitude such as *Nyctalus* and *Pipistrellus* bats. It is therefore likely that brown long-eared bats are underrepresented in the data.

### 3.2.4 Survey effort

The BCT guidelines recommend one survey visit per month between April and October for sites of Medium Habitat Quality. To date monthly automated surveys have been completed between May and September 2017, and transect monthly between May and August 2017 (September survey postponed due to bad weather). It is considered that this is a valid sample of the activity of bats at the Site, and results will be updated upon completion of the September transect.

As there are no known hibernation sites on or near the Site, it is unlikely that the surveys in April and September/October would record any important transitional bat activity.

## 4 Results

### 4.1 Species and genera identified

Species recorded during surveys in the Study Area were as follows:

- Common pipistrelle *Pipistrellus pipistrellus*.
- Soprano pipistrelle *Pipistrellus pygmaeus*.
- Brown long-eared bat *Plecotus auritus*.
- Noctule bat *Nyctalus noctula*.
- Serotine *Eptesicus serotinus*

In addition to the above species, bat calls classified to the following genus level were also recorded:

- *Myotis*<sup>4</sup> species bat.
- *Nyctalus* species bat.

Bats with echolocation calls between the given parameters for the common and soprano pipistrelle were recorded in the data, as were calls between the parameters given for the common and Nathusius' pipistrelle, although Nathusius' was not positively identified. Whilst not positively identified, Leisler's bat *Nyctalus leisleri* calls may also be present in the data.

It should also be noted that either one or multiple *Myotis* species may be present<sup>5</sup>. It should also be noted that some quieter echolocating bats (such as brown long-eared and Natterer's bat *Myotis nattereri*) are difficult to record with bat detectors and may be under represented.

Totalling individual identified species and single species from unaccounted genera (*Myotis*), a minimum of six different bat species were recorded during the activity surveys. Considering the survey results and the known distribution and rarity of species and habitats on the site, up to a maximum of eleven species may have been recorded in Study Area, although this is considered unlikely.

<sup>4</sup> The call characteristics of the *Myotis* genus have a large overlap and so identification to species level is not usually possible from calls alone, although Bechstein's bat *M. bechsteini* and Natterer's bat can sometimes be identified due to their broadband calls.

<sup>5</sup> Total of six UK resident *Myotis* species. Given the known distribution and rarity of the species, and the habitat present on and around the Study Area, up to a maximum of four *Myotis* species may have been recorded in the Study Area i.e. Daubenton's, whiskered, Brandt's and Natterer's.

### 4.2 Automated survey results

#### 4.2.1 Survey effort

Successfully completed sampling nights are shown in Table 6.

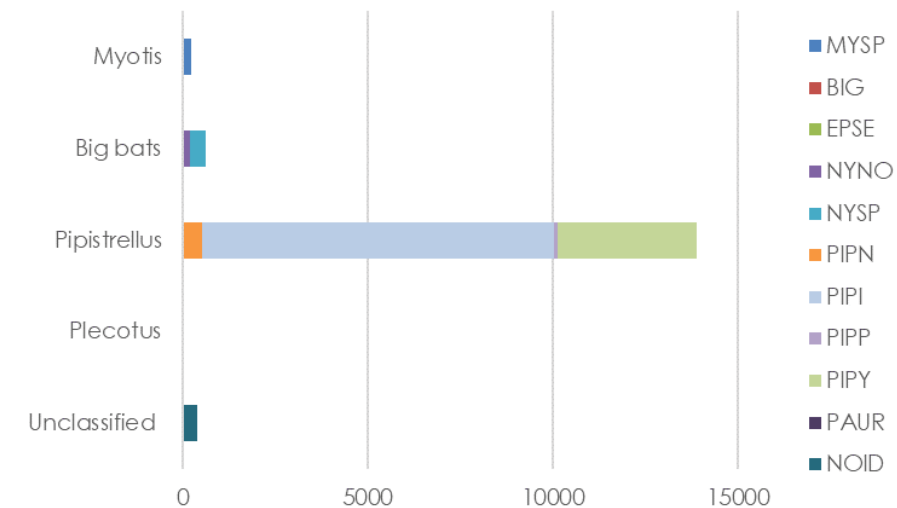
Accounting for all four sampling locations, a total of 100 sampling nights of the scheduled 100 nights were successfully completed, equating to a mean of 25 nights per sampling location. This accounts to a sampling success rate of 100%. The four automated detectors recorded bat activity for a total of 948.8 hours (4 units x 237.2 hours = 948.8 hours survey total).

**Table 6. Completed automated survey nights.**

Month	Completed survey nights at locations				Site total
	A	B	C	D	
May	5	5	5	5	20
June	5	5	5	5	20
June	5	5	5	5	20
August	5	5	5	5	20
September	5	5	5	5	20
<b>Total</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>100</b>
<b>Mean per month</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>Successful completion</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

#### 4.2.2 Total activity levels

A total of 15,144 bat passes were recorded during the automated surveys. The distribution between each genus classification of bat is shown in Figure 2 and bat passes per night for each species in Table 7.



**Figure 2. Total count of automated bat passes by bat genus classification, with species classification in the legend**

**Table 7. Bat passes per night by species and location**

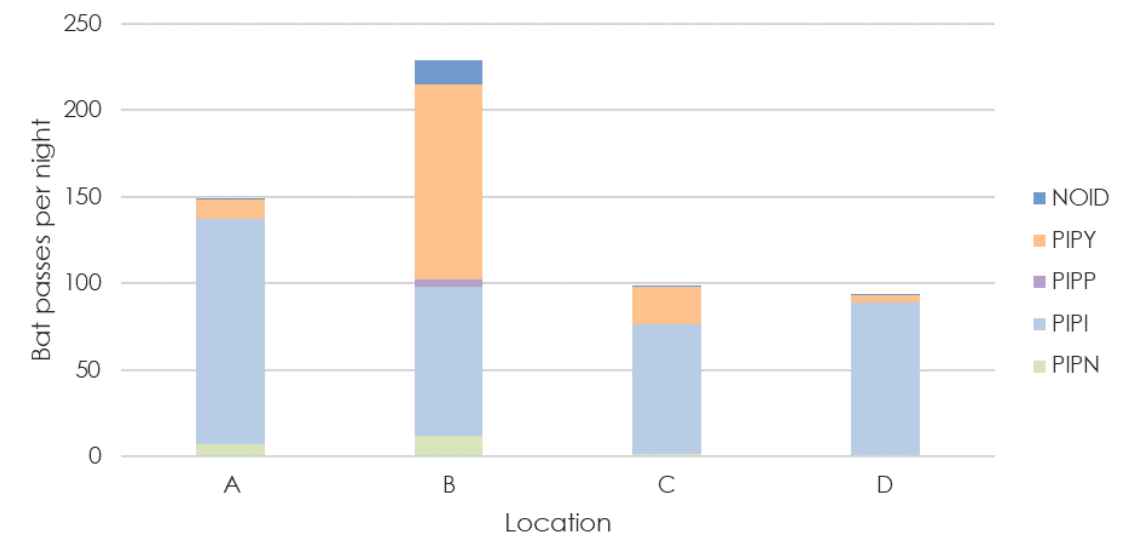
Species	Location				Site total	Mean/ location	% of total
	A	B	C	D			
MYSP	0.5	2.6	2.0	3.9	9.0	2.3	1.5
PAUR	0.1	0.2	0.3	0.0	0.5	0.1	0.1
BIG	0.2	0.2	0.0	0.0	0.4	0.1	0.1
EPSE	0.0	0.0	<0.1	0.0	<0.1	<0.1	<0.1
NYSP	4.0	1.3	1.8	0.9	16.8	4.2	2.8
NYNO	7.1	4.6	2.6	2.5	8.0	2.0	1.3
PIPNI	7.2	12.1	1.2	0.6	21.2	5.3	3.5
PIPI	130.1	86.3	74.9	88.2	379.6	94.9	62.7
PIPP	0.2	3.9	0.4	0.2	4.7	1.2	0.8
PIPY	11.4	112.8	21.8	4.2	150.2	37.5	24.8
NOID	0.4	13.7	0.6	0.8	15.4	3.9	2.5
All bats	161.2	237.6	105.6	101.4	605.8	151.4	100.0

*Pipistrellus* species bats dominated activity levels accounting for 91.7% of total activity. *Nyctalus* species bats were the second highest amongst the genera with 4.1% of total activity followed by bats of the *Myotis* genus with 1.5%. *Plecotus* and *Eptesicus* species bats were the most infrequently recorded genera with 0.1% and 0.01% respectively. 2.5% of passes were classified as unidentified bats – this was influenced by the higher number of *Pipistrellus* species social calls in the September data.

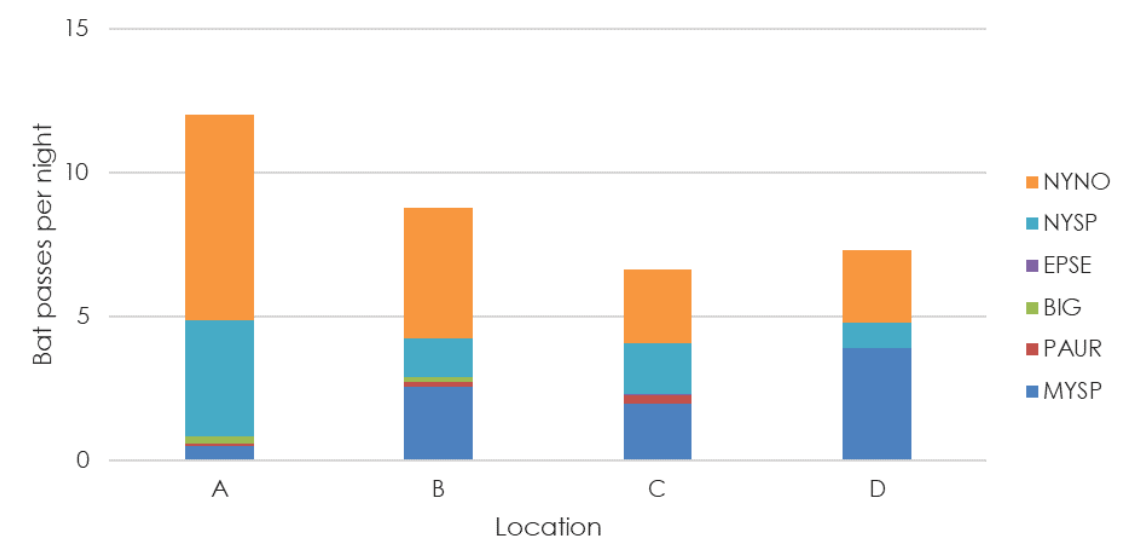
**4.2.3 Spatial distribution**

Survey detector locations are shown on Figure 1. Total activity was highest at Location B (39%) and Location A (27%). The lowest was at Location D (17%) and Location C (17%). High levels of *Pipistrellus* species activity influenced activity at all locations (Figure 3).

Non *Pipistrellus* activity was dominated by *Nyctalus* activity which was highest at Location A and B. *Myotis* activity was highest at B and D. *Plecotus* was not recorded at D with seven passes at C, 2 at A and four at B. A single serotine pass was recorded, which was at C.



**Figure 3. Bat passes per night at each location by *Pipistrellus* species bats**



**Figure 4. Bat passes per night at each location by non-*Pipistrellus* species bats**

#### 4.2.4 Temporal distribution

Figure 5 plots all activity recorded in each month of survey.

Peak activity was recorded in May (195.5 bp/n) and September (212.9 bp/n). The lowest level of activity was recorded in August with 61.1. 175.6 bp/n were recorded in June and 109.5 in July.

As the Figure 5 shows there was a gradual reduction of big bat activity (*Nyctalus* and *Eptesicus*) throughout the season. *Myotis* bats showed an opposite trend by increasing in the Autumn. *Pipistrellus* activity showed a declining trend between May and August before rising again in September. Unclassified bat passes also increased in September which is considered to be associated with an increase in *Pipistrellus* bats social calls<sup>6</sup>. This rise in activity is likely associated with mating behaviour, and largely attributed to soprano pipistrelles at Location B.

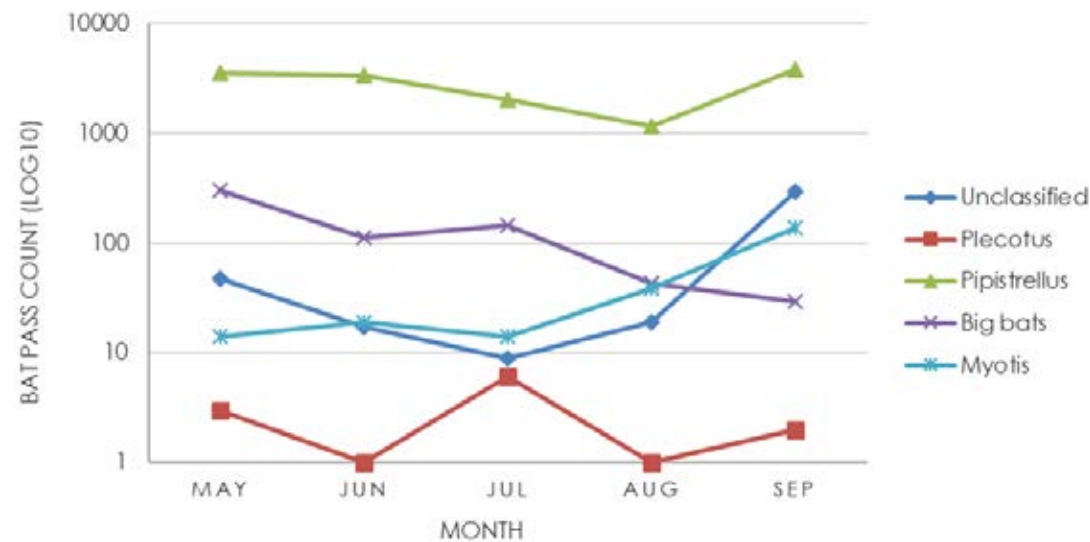


Figure 5. Distribution of activity across each month of survey by genus classification

Earliest bat passes are plotted in Figure 6. The earliest bat passes were of common pipistrelle at 14 minutes after sunset at Location C and at 17 minutes at Location D on the same night in June. This was likely the same bat or group of bats moving from Location C towards D. Mean earliest passes each night for this species was 35 minutes after sunset.

The earliest soprano pipistrelle was at 17 minutes after sunset in September at Location C, with a mean of 47 minutes each night. The earliest noctule was at 25 minutes after sunset, and *Nyctalus* at 35 minutes. The combined mean these classifications was 1 hour 24 minutes.

<sup>6</sup> Analyst opinion from knowledge of data - social calls were not identified and labelled for this level of analysis

The earliest *Myotis* was 31 minutes after sunset with a mean of 2 hours and 8 minutes. The earliest brown long-eared bat was 53 minutes after sunset with a mean of 2 hours 49 minutes. The single serotine pass was recorded at 90 minutes after sunset with a mean for the big bats classification of 2 hours 20 minutes.

Figure 7 plots bat passes in 30 minute intervals. The graph shows that there is little activity close to typical emergence times (sunset to 60 minutes dependent on species), with activity levels increasing from between 60 to 120 minutes and persisting throughout the night. This suggests that large roosts are not on or close to the site or commuting from these roosts across the site.

However, the results show that *Pipistrellus* species bats is high throughout the later periods of the night, and *Nyctalus* species activity is also higher than usually expected during these periods. Whilst the site is unlikely to be important for roosts (either present on site, adjacent or used for commuting from roosts), the timing of this activity suggests these bats are using the site for foraging and commuting between foraging areas.

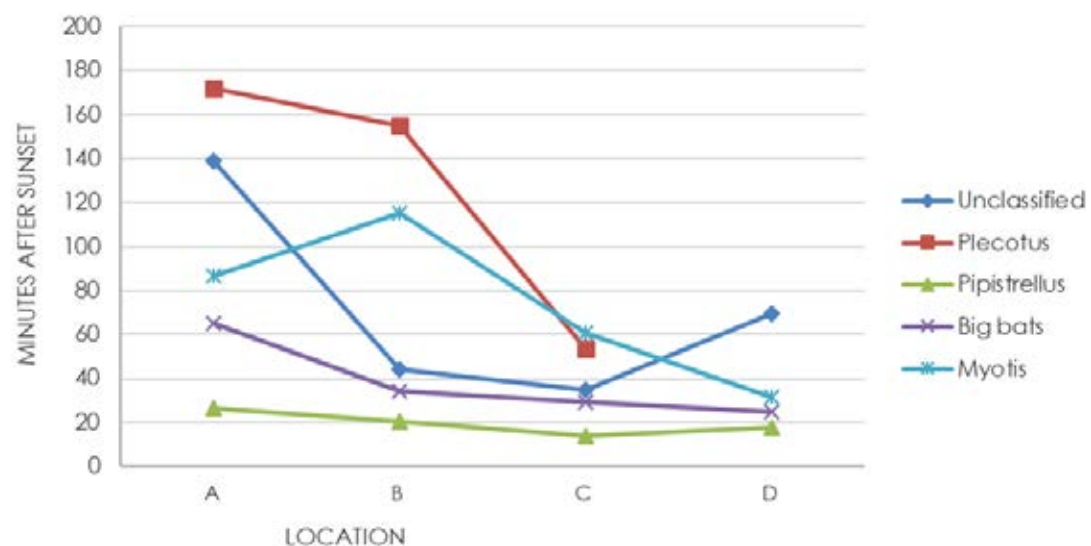


Figure 6. Chart showing the earliest bat passes by each genus classification

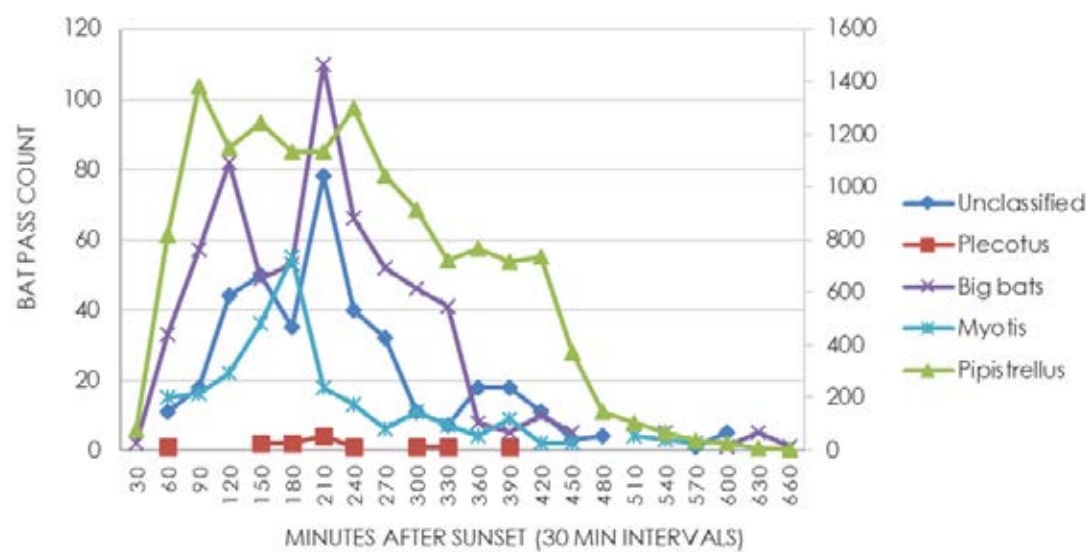


Figure 7. Chart of bat activity plotted against 30 minute time intervals of time after sunset over all survey nights. Pipistrellus are plotted on the secondary y axis (right). All other groups are on the primary y axis (left).

### 4.3 Transect results

#### 4.3.1 Survey effort

Two transect routes were successfully completed in four months (May, June, July, August), in good weather conditions with no rain or high wind. The four static detectors monitor bats for a longer time and give a better indication of abundance (4 units x 237 hours = 512 hours survey total).

The transect surveys are good for showing distribution of bats in areas where automated detectors are not used, but are a fairly small snap shot of the whole picture of bat activity (2 transects x 5 visits = 20 hours survey total).

#### 4.3.2 Total activity levels

Total counts of bat passes are presented in

Table 8 and Figure 8. A total of 190 passes were recorded with a mean of 19.0 passes per transect per survey month. Activity was dominated by common pipistrelle bats with 68% of activity. Soprano pipistrelle were the second highest with 18%. The crossover between these two species constituted 1%. Noctule was 4% with *Nyctalus* 6%. *Myotis* were 3%..

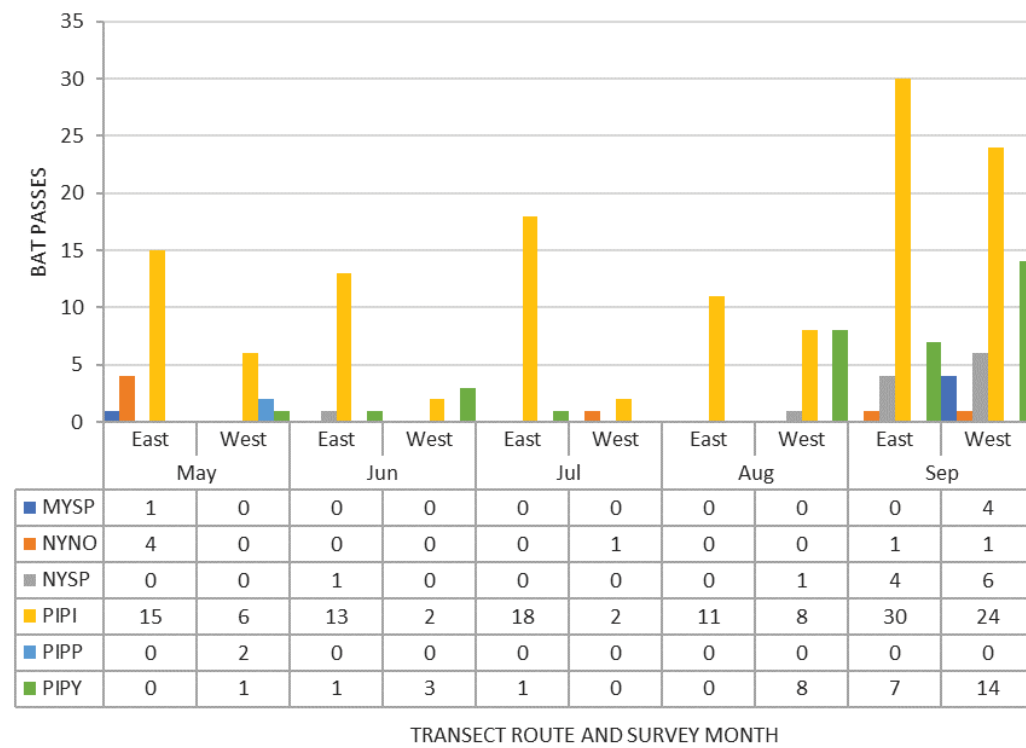


Figure 8. Transect results for each transect and month of survey. Date table shows bat pass counts.

Table 8. Bat pass counts and statistics for transect surveys

Transect		Species						Total
		MYSP	NYNO	NYSP	PIPI	PIPP	PIPY	
Total passes	East	1	5	5	87	0	9	107
	West	4	2	7	42	2	26	83
	Total	5	7	12	129	2	35	190
Mean passes per transect	East	0.2	1.0	1.0	17.4	0.0	1.8	21.4
	West	0.8	0.4	1.4	8.4	0.4	5.2	16.6
	Total	0.5	0.7	1.2	12.9	0.2	3.5	19.0

4.3.3 Spatial distribution

The transect routes are shown on Figure 1. The route took in the majority of the Study Area and sampled the different habitats present. The heat map in

Figure 9 shows that the only concentrations of activity picked up on transect surveys are along the southern and eastern boundaries of the site.

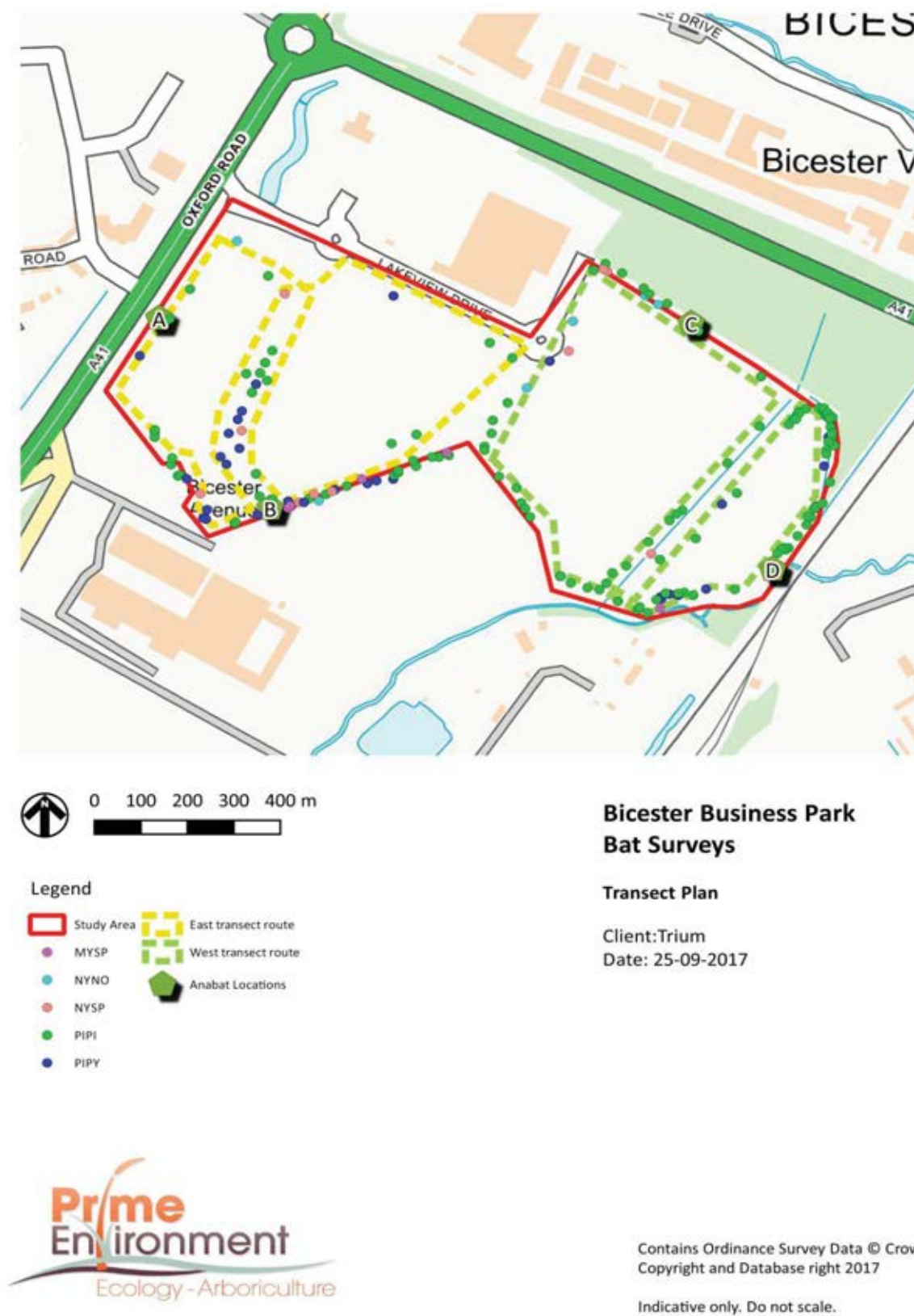


Figure 9. Heap map showing concentration of bat passes on the transect



#### 4.3.4 Temporal distribution

Activity was consistent from May to the August surveys with a total of between 20 and 29 passes. There was a higher level of activity in September which accounted for 48% of total activity with 91 passes across both routes, and although dominated by *Pipistrellus* species activity, *Nyctalus* and *Myotis* were also recorded more frequently than previous months.

## 5 Discussion

Results of the surveys are discussed further below relating to both site and general behavioural context.

### 5.1 All species

The majority of activity recorded was of pipistrelle bats (92%). Location A had the most non-pipistrelle bats.

The automated and transect results indicate different levels of activity. However, the automated data showed that many bats were arriving at site later during the night and are therefore less likely to be recorded during the transect survey period. Overall the site is likely to be more important for foraging bats and bats commuting between foraging areas, rather than important for commuting routes from roost sites. However, some bats are arriving at the site soon after they emerge from roosts suggesting small roosts or individual bats may be roosting nearby.

### 5.2 Myotis bats

These bats were predominately recorded in excess of an hour after sunset and it is therefore unlikely that an important roost is on or immediately adjacent to the site. The eastern area of the site is the most used; use of the western and central areas may be impacted by the light pollution in the area, to which *Myotis* species are generally more sensitive. Two passes per night is still a low amount of activity and it is unlikely the site is important to these bats.

### 5.3 Nyctalus bats

These bats emerge from roosts at approximately sunset, and they were not recorded close to sunset it is highly unlikely a roost is in the area. These bats are likely to be foraging on the Site and commuting through it. The results indicate that the western area of the Site is more important to these bats (which are less susceptible to the light pollution in this area). They are likely to be foraging for insects over the grassland field, field margins and ditch.

### 5.4 Pipistrellus bats

Activity was high for common pipistrelles across the Site but highest at Location A. Soprano pipistrelles were highest at B, which is largely effected by the increase in likely male mating behaviour from these bats in September, followed by Location C. These results are expected as being more associated with aquatic habitats soprano pipistrelles were higher nearer to the ponds and ditches in the south and eastern areas of the Site boundary.

The earliest bat passes were of common pipistrelle at 14 minutes after sunset at Location C and at 17 minutes at Location D on the same night in June. This was likely the same bat or group of bats moving from Location C towards D. The earliest soprano pipistrelle was at 17 and 20 minutes after sunset at Location C and B respectively on the same night in September. Similarly this may be soprano pipistrelles moving from C towards D

These are both early emerging bats. If a non-mating roost was on site or immediately adjacent, one would expect regular activity closer to sunset. However, it is likely that roosts

for both species are in the area as they were recorded at 14 and 17 minutes after sunset on a single night.

A male soprano was likely advertising to females near Location B in September. This means it is likely the bat has a roost nearby which it uses for mating with females – given there are mature trees in this area, it could be possible the roost was active in one of the trees. Unlike other species, which congregate in large numbers, pipistrelle mating roosts are common and widespread and often of single male bats, and are not considered to be of high conservation status.

Whilst bat passes were classified as the crossover between common and Nathusius pipistrelles, no Nathusius were positively identified. It is likely these passes were common pipistrelles echolocating outside of their normal range (e.g. low constant frequency calls during the navigating phase in wide open spaces).

### 5.5 Brown long-eared bats

Only 13 Brown-long eared bats passes were recorded. These were spread across locations A B and D, and were recorded in each month of survey. There is too little data (likely due to low detection rate of this species) to make any assumptions on the use of the site by these bats, however, the data suggests a roost is unlikely to be present on or adjacent to the site and they are using all areas of the site.

### 5.6 Serotine bats

A single serotine bat pass was identified. This was at Location C in May. A further 18 passes were classified as Big Bats (serotine or *Nyctalus*). So serotine activity may be higher, but still very low. The site is unlikely to be important for these bats.

## 6 Conclusions

At least six species of bat occur in the Study Area. *Pipistrellus* species bats dominated activity levels, the majority being common pipistrelle. Common pipistrelle were evenly distributed across the site, however, soprano pipistrelles were concentrated in the southwest and eastern area. A soprano mating roost of a single male bat was likely active near Location B in September – likely in a mature tree in this area.

*Nyctalus* species bat activity was higher than normally expected with levels highest in the western area of the site. As the western boundary and the northern boundary are flooded with light, it is likely the bats are foraging over the field.

Other species of bat were recorded, but all at relatively low levels of activity. No regular activity close to typical emergence time were recorded for any species. The results suggest that roosts are not in the immediate area to the Study Area during the time of surveys. However, with activity higher during the middle of the night the site is of importance for foraging bats.

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# ES Volume II: Technical Appendices

## Appendix 11.3: Great Crested New Survey Report

**Document Control**

Report Issue	Notes
01	Original document to client.
02	
03	
04	
05	
Managing Office	Derby

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**TRIUM ENVIRONMENTAL**

**CONSULTING**

**GREAT CRESTED NEWT eDNA**

**SURVEY**

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## 1 Introduction

### 1.1 Terms of Reference

In June 2017 Prime Environment Limited (Prime Environment) was instructed by Trium Environmental Consulting LLP (the Client) to undertake an environmental DNA (eDNA) survey of waterbodies in the vicinity of OS Parcel 2200 adjoining Oxford Road, north of Promised Land Farm, Oxford Road, Bicester. (Ordnance Survey (OS) grid Reference SP 57958 21564) (The Site).

The Site is 12 hectares and comprises an arable field with rough grassland margins and hedgerows with trees. There is a ditch running across the Site in the west and dry and wet ditches at the field boundaries. The Survey Area is slightly larger than the Site (15 ha) as the Site does not include all of the field.

The project proposals are to develop the Site into a large business park with associated hard and soft landscaping. The application will be subject to a formal Environmental Impact Assessment (EIA).

### 1.2 Aims and Objectives

The aims of the study were to:

- Identify whether great crested newts occur in ponds close to the Site.

Ecological information for the assessment was provided by an eDNA sample analysis.

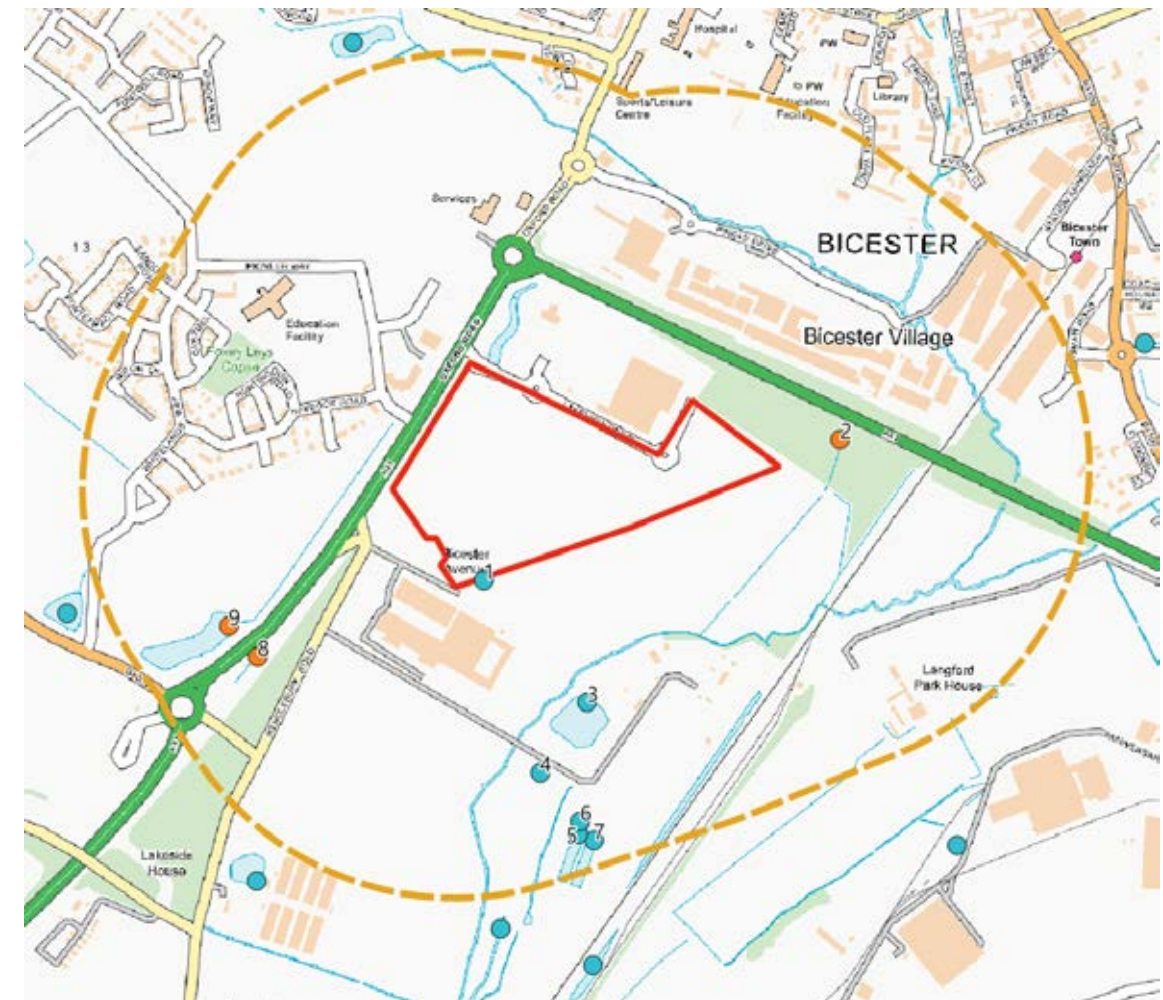
## 2 Methodology

The survey was undertaken by Hayley Farnell MSc BSc (Hons) and Andy Swan Msc, Bsc (hons). Hayley has over 12 years' experience in environmental consultancy. Both are full members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and hold a scientific licence for great crested newt surveys.

During Preliminary Ecological Assessment<sup>1</sup> Ordnance survey mapping, aerial photos and the site visit were used to identify the presence of ponds within 500 m of the Site. Nine ponds were located (See Plan 1 below). Pond 1 is immediately adjacent to the Site, it is located within the garden centre and its overflow feeds Ditch 1. Pond 1 scores 0.79 in the HSI (good quality for great crested newts). Pond 2 is a water attenuation pond in an unmanaged field north of the Site. The pond was dry at the time of phase 1 habitat survey (May 2017) and appears to rarely hold water (based on the vegetation growing within it). Ponds 3,5,6 and 7 are part of the water treatment processes at the Thames Water site. These were not viewed for this survey, but are unlikely to be suitable for newts. Pond 4 is a series of connected ditches and scrapes at the Bicester Wetland Nature Reserve. This feature was not surveyed fully for the phase 1 survey, but observed by binoculars. It has a HSI score of 0.53 (below average quality for great crested newts). Ponds 8 and 9 are new attenuations ponds associated with a development to the west; the former is for road runoff from the new road access and the latter appears to be in what will be public open space. Neither held water at the time of phase 1 survey, although Pond 9 does have emergent plants indicating it is wet or at least damp for some of the year. HSI data is included in Appendix 1.

The HSI survey was undertaken at a time of year when newts lay eggs, but none were observed during the survey.

### Plan 1 Pond Locations



Orange = dry at time of phase 1 habitat survey, blue = holding water at time of phase 1 habitat survey.

Access was attempted for all waterbodies within 250 m of the Site.

Nine ponds were identified in proximity to the Site which were planned to be subject to an environmental DNA (eDNA) survey. The survey followed Natural England's approved protocol<sup>2</sup>. The eDNA survey involves collecting samples from the water column in 20 places around the pond, following a strict collection and contamination protocol. Samples can be collected between 15th April and 30th June. The 20 samples are aggregated and six sets of this water preserved in alcohol, refrigerated and sent for analysis. The laboratory extracts environmental DNA – DNA held in the water from skin, faeces etc. using qPCR (quantitative Polymerase Chain Reaction).

<sup>1</sup> Prime Environment (2017) 0271.0001 Bicester Preliminary Ecological Appraisal

<sup>2</sup> Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014). *Analytical and methodological development for improved surveillance of the Great Crested Newt*. Defra Project WC1067. Freshwater Habitats Trust: Oxford.

eDNA can provide a presence or absence result, but cannot infer the size of a population.

### 2.1 Constraints

Any ecology assessment must be considered as a 'snapshot' of the Site conditions at the time of the survey.

Ecological constraints will change over time and therefore the findings of this report are considered to be valid for a period of one year, after which the report should be reviewed assess whether an updated survey is necessary.

### 3 Results and Assessment

The eDNA analysis was negative for both ponds (see Appendix 1): great crested newts were not present in either pond in the year of the survey. It is therefore very unlikely that great crested newts breed in these ponds at any time.

Pond Reference	Access / water notes	eDNA result
1	Pond held water and eDNA samples retrieved without constraint	negative
2	Pond dry	n/a
3	Access permission withdrawn on day of survey - active water treatment site	n/a
4	Wetland held water. Samples taken from accessible shore	negative
5	Access permission withdrawn on day of survey - active water treatment site	n/a
6	Access permission withdrawn on day of survey - active water treatment site	n/a
7	Access permission withdrawn on day of survey - active water treatment site	n/a
8	Pond dry	n/a
9	Pond dry	n/a

No further consideration for great crested newts is required.



**Appendix 1: eDNA results**

Folio No: E1538  
 Report No: 1  
 Order No: PO-109  
 Client: PRIME ENVIRONMENT  
 Contact: Jo Pedder  
 Contact Details: jpedder@primeenvironment.co.uk  
 Date: 21/08/2017

**TECHNICAL REPORT**

**ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS**

**Date sample received at Laboratory:** 06/07/2017  
**Date Reported:** 21/08/2017  
**Matters Affecting Results:** None

**RESULTS**

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
33890	Bicester Nature Reserve	SP577210	Pass	Pass	Pass	Negative	0

**SUMMARY**

When Great Crested Newts (GCN); Triturus cristatus inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water, we can analyse these small environmental DNA (eDNA) traces to confirm GCN habitation, or establish GCN absence.

The water samples detailed below were submitted for eDNA analysis to the protocol stated in DEFRA WC1067 (Latest Amendments). Details on the sample submission form were used as the unique sample identity.

## RESULTS INTERPRETATION

Lab Sample No.- When a kit is made it is given a unique sample number. When the pond samples have been taken and the kit has been received back in to the laboratory, this sample number is tracked throughout the laboratory.

Site Name- Information on the pond.

O/S Reference - Location/co-ordinates of pond.

SIC- Sample Integrity Check. Refers to quality of packaging, absence of tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to results errors. Inspection upon receipt of sample at the laboratory. To check if the Sample is of adequate integrity when received. Pass or Fail.

DC- Degradation Check. Analysis of the spiked DNA marker to see if there has been degradation of the kit since made in the laboratory to sampling to analysis. Pass or Fail.

IC- Inhibition Check- PCR inhibitors can cause false results. Inhibitors are analysed to check the quality of the result. Every effort is made to clean the sample pre-analysis however some inhibitors cannot be extracted. An unacceptable inhibition check will cause an indeterminate sample and must be sampled again.

Result- NEGATIVE means that GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as no evidence of GCN presence. POSITIVE means that GCN eDNA was found at or above the threshold level and the presence of GCN at this location at the time of sampling or in the recent past is confirmed. Positive or Negative.

Positive Replicates- To generate the results all of the tubes from each pond are combined to produce one eDNA extract. Then twelve separate analyses are undertaken. If one or more of these analyses are positive the pond is declared positive for the presence of GCN. It may be assumed that small fractions of positive analyses suggest low level presence but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive.

## METHODOLOGY

The laboratory testing adheres to strict guidelines laid down in WC1067 Analytical and Methodological Development for Improved Surveillance of The Great Crested Newt, Version 1.1

The analysis is conducted in two phases. The sample first goes through an extraction process where all six tubes are pooled together to acquire as much eDNA as possible. The pooled sample is then tested via real time PCR (also called q-PCR). This process amplifies select part of DNA allowing it to be detected and measured in 'real time' as the analytical process develops. qPCR combines PCR amplification and detection into a single step. This eliminates the need to detect products using gel electrophoresis. With qPCR, fluorescent dyes specific to the target sequence are used to label PCR products during thermal cycling. The accumulation of fluorescent signals during the exponential phase of the reaction is measured for fast and objective data analysis. The point at which amplification begins (the Ct value) is an indicator of the quality of the sample. True positive controls, negatives and blanks as well as spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared so they act as additional quality control measures.

The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no DNA from other species present in the water is amplified. The unique sequence appropriate for GCN analysis is quoted in DEFRA WC 1067 and means there should be no detection of closely related species. We have tested our system exhaustively to ensure this is the case in our laboratory. We can offer eDNA analysis for most other species including other newts.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. Kits are manufactured by SureScreen

Scientifics to strict quality procedures in a separate building and with separate staff, adopting best practice from WC1067 and WC1067 Appendix 5. Kits contain a 'spiked' DNA marker used as a quality control tracer (SureScreen patent pending) to ensure any DNA contained in the sampled water has not deteriorated in transit. Stages of the DNA analysis are also conducted in different buildings at our premises for added

SureScreen Scientifics Ltd also participate in Natural England's proficiency testing scheme and we also carry out inter-laboratory checks on accuracy of results as part of our quality procedures.

**Reported by:** Troy Whyte

**Approved by:** Derry Hickman

---

End Of Report

Folio No: E1537  
 Report No: 1  
 Order No: PO-108  
 Client: PRIME ENVIRONMENT  
 Contact: Jo Pedder  
 Contact Details: jpedder@primeenvironment.co.uk  
 Date: 21/08/2017

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**Matters Affecting Results:** None

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#### SUMMARY

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The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no DNA from other species present in the water is amplified. The unique sequence appropriate for GCN analysis is quoted in DEFRA WC 1067 and means there should be no detection of closely related species. We have tested our system exhaustively to ensure this is the case in our laboratory. We can offer eDNA analysis for most other species including other newts.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. Kits are manufactured by SureScreen

Scientifics to strict quality procedures in a separate building and with separate staff, adopting best practice from WC1067 and WC1067 Appendix 5. Kits contain a 'spiked' DNA marker used as a quality control tracer (SureScreen patent pending) to ensure any DNA contained in the sampled water has not deteriorated in transit. Stages of the DNA analysis are also conducted in different buildings at our premises for added

SureScreen Scientifics Ltd also participate in Natural England's proficiency testing scheme and we also carry out inter-laboratory checks on accuracy of results as part of our quality procedures.

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End Of Report

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# ES Volume II: Technical Appendices

## Appendix 11.4: Legislative and Planning Policy Context

## PLANNING POLICY CONTEXT - ECOLOGY

### National Policy National Planning Policy Framework

Section 40 of the Natural Environment and Rural Communities Act 2006 places a duty on all public authorities in England and Wales to have regard, in the exercise of their functions, to the purpose of conserving biodiversity. A key purpose of this duty is to embed consideration of biodiversity as an integral part of policy and decision making throughout the public sector, which should be seeking to make a significant contribution to the achievement of the commitments made by government in its Biodiversity 2020 strategy.

This is delivered in part at a national level through the National Planning Policy Framework (NPPF). The NPPF is clear that pursuing sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature, and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment. The following policies in the NPPF are relevant to ecology (policy text is abbreviated):

9. Pursuing sustainable development involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life.

17. Within the overarching roles that the planning system ought to play, a set of core land-use planning principles should underpin both plan-making and decision-taking ... Including contribution to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser environmental value, where consistent with other policies in the Framework.

109. The planning system should contribute to and enhance the natural and local environment by:

- protecting and enhancing valued landscapes, geological conservation interests and soils
- recognising the wider benefits of ecosystem services
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures
- 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
- remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate

113. Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites<sup>1</sup>, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks.

114. Local planning authorities should:

- set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure
- maintain the character of the undeveloped coast, protecting and enhancing its distinctive landscapes, particularly in areas defined as Heritage Coast, and improve public access to and enjoyment of the coast

117. To minimise impacts on biodiversity and geodiversity, planning policies should:

- plan for biodiversity at a landscape-scale across local authority boundaries
- identify and map components of the local ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local partnerships for habitat restoration or creation
- promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan
- aim to prevent harm to geological conservation interests
- where Nature Improvement Areas are identified in Local Plans, consider specifying the types of development that may be appropriate in these Areas

118. When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

- if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused
- proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest
- development proposals where the primary objective is to conserve or enhance biodiversity should be permitted
- opportunities to incorporate biodiversity in and around developments should be encouraged;
- planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and
- the following wildlife sites should be given the same protection as European sites:

- potential Special Protection Areas and possible Special Areas of Conservation
- listed or proposed Ramsar sites<sup>3</sup>
- sites identified, or required, as compensatory measures for adverse effects on European sites, potential special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites

119. The presumption in favour of sustainable development (paragraph 14) does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined.

157. Crucially, Local Plans should ... contain a clear strategy for enhancing the natural, built and historic environment, and supporting Nature Improvement Areas where they have been identified

#### [Local Policy](#)

##### [Cherwell Local Plan 2011-2031](#)

The Cherwell Local Plan 2011-2031 provides the planning policy framework for the District, and outlines the basis for decisions on land use planning affecting the Cherwell District.

Ecology and nature conservation policies in the Local Plan are included in 'Theme 3: Policies for Ensuring Sustainable Development (ESD)' and specifically within policies ESD9 – 11.

Policy ESD 9: Protection of the Oxford Meadows SAC relates to the conservation of a single site. This sufficiently distant from the application site to not be relevant to this application.

Policy ESD 10: Protection and Enhancement of Biodiversity and the Natural Environment sets out how designated sites in the region will be protected and how development should include features to benefit biodiversity.

Policy ESD 11: Conservation Target Areas refers to the approach to be adopted in Conservation Target Areas (CTA). The application site does not lie within or adjacent to a CTA, and as such this policy is not considered to apply to this case.

##### [The Cherwell Local Plan 1996](#)

There are several saved policies from the 1996 local plan which are relevant to ecology. Of relevance to this site are:

Policy C1 relates to the protection of nature conservation sites.

Policy C2 relates to the protection of species protected by legislation.

Policy C4 relates to the creation of new habitats.



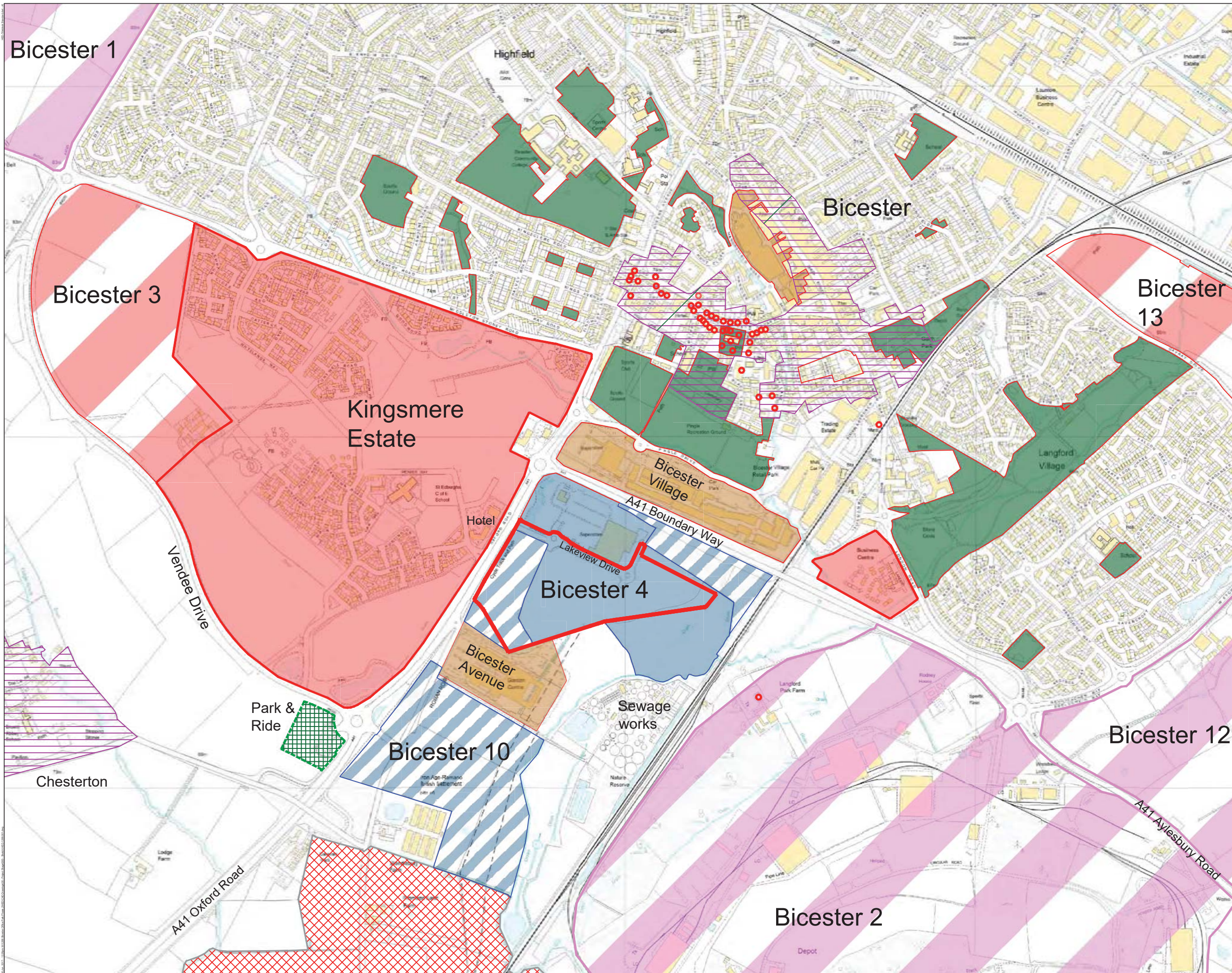
# ES Volume II: Technical Appendices

## Appendix 12.1: Drawings and Photographs

# LANDSCAPE AND VISUAL IMPACT

# 12

## Appendix 12.1 Drawings and Photographs



**NOTES:**  
 This drawing is the copyright of Hyland Edgar Driver. It must not be copied or reproduced without written consent. Only figured dimensions are to be taken from this drawing. All contractors must visit the site and be responsible for taking and checking all dimensions related to the works shown on this drawing.

**Legend-**

- Site Boundary
- Existing Retail Parks
- Approved Employment Sites
- New Employment Sites
- Approved Housing Sites
- Strategic Housing Sites
- Mixed Use (Housing & Employment)
- Scheduled Ancient Monument
- Conservation Areas
- Existing Green Space
- Existing Park & Ride
- Listed Buildings

Information taken from Cherwell adopted Local Plan 2011 - 2031 and MAGIC site.

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A - Updated Red Line Boundary - RK 28.06.17

REVISIONS

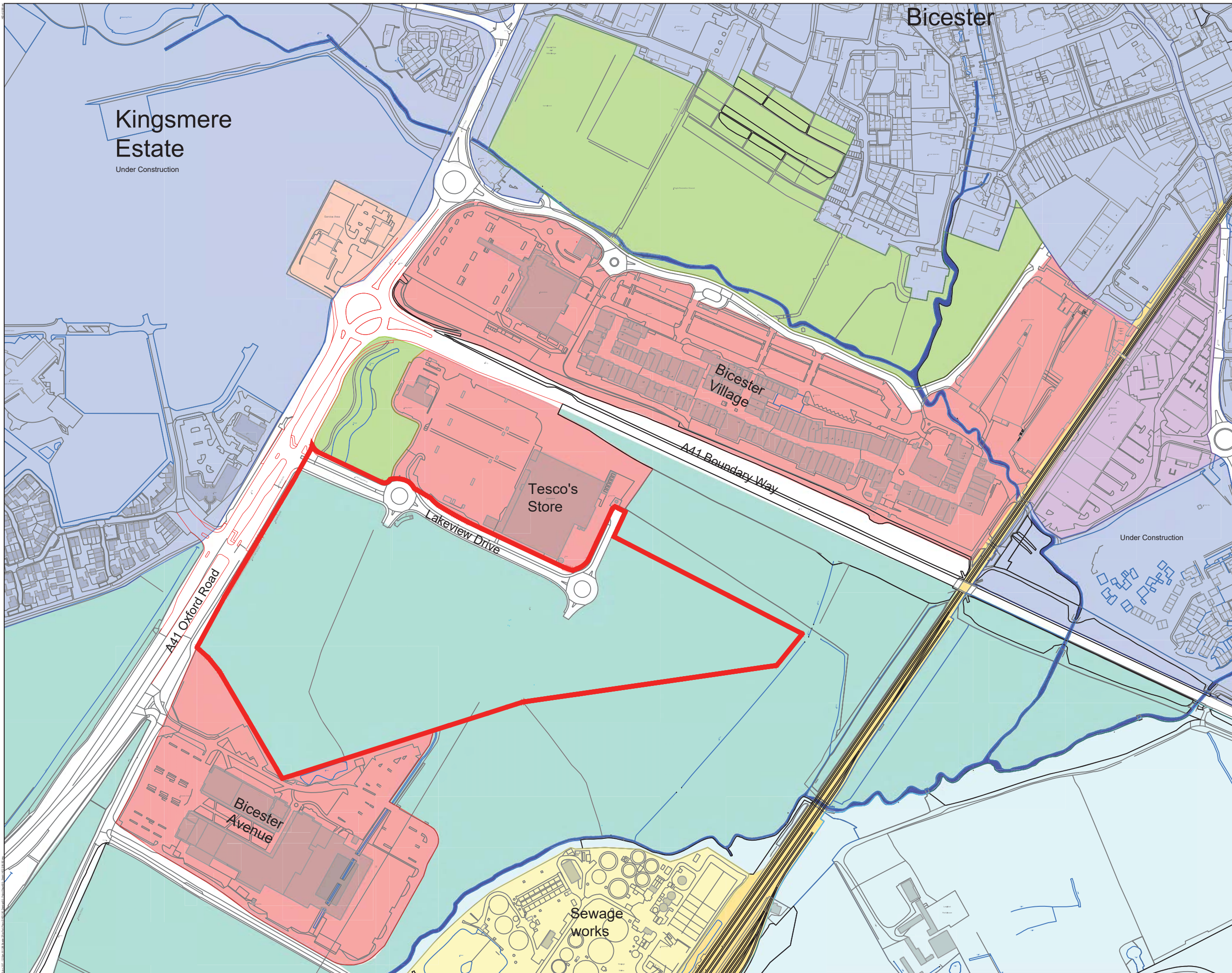
**H | E | D**  
 Hyland Edgar Driver  
 Landscape Architects and Urban Designers  
 One Wessex Way, Golden Common, Winchester, Hampshire, SO21 1WG  
 Telephone: 01962 711600 Fax: 01962 713845

PROJECT  
**BICESTER OFFICE PARK**  
 Bicester




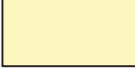



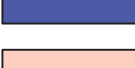
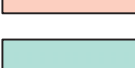
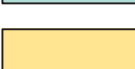

SUBJECT  
 Site Context Plan

DATE	30.06.17	DRAWN BY	ZC
SCALE	1 : 50,000 @ A1	CHECKED BY	IN
DRAWING NUMBER	HED.1288.001	REVISION	A
DRAWING STATUS	B		

A - PRELIMINARY    B - ISSUED FOR PLANNING    C - ISSUED FOR DESIGN INFORMATION    D - ISSUED FOR TENDER  
 E - ISSUED FOR APPROVAL    F - ISSUED FOR CONSTRUCTION    G - AS BUILT



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- Legend-**
-  Site Boundary
  -  Bicester Town
  -  Retail Area
  -  Sewage Treatment Works
  -  Recreation / Open Space
  -  Industrial / Commercial
  -  Alluvial Lowland
  -  Major Rivers
  -  Service Station
  -  Clay Vale
  -  Railway Line

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A Updated Red Line Boundary - RK 28.06.17  
 REVISIONS

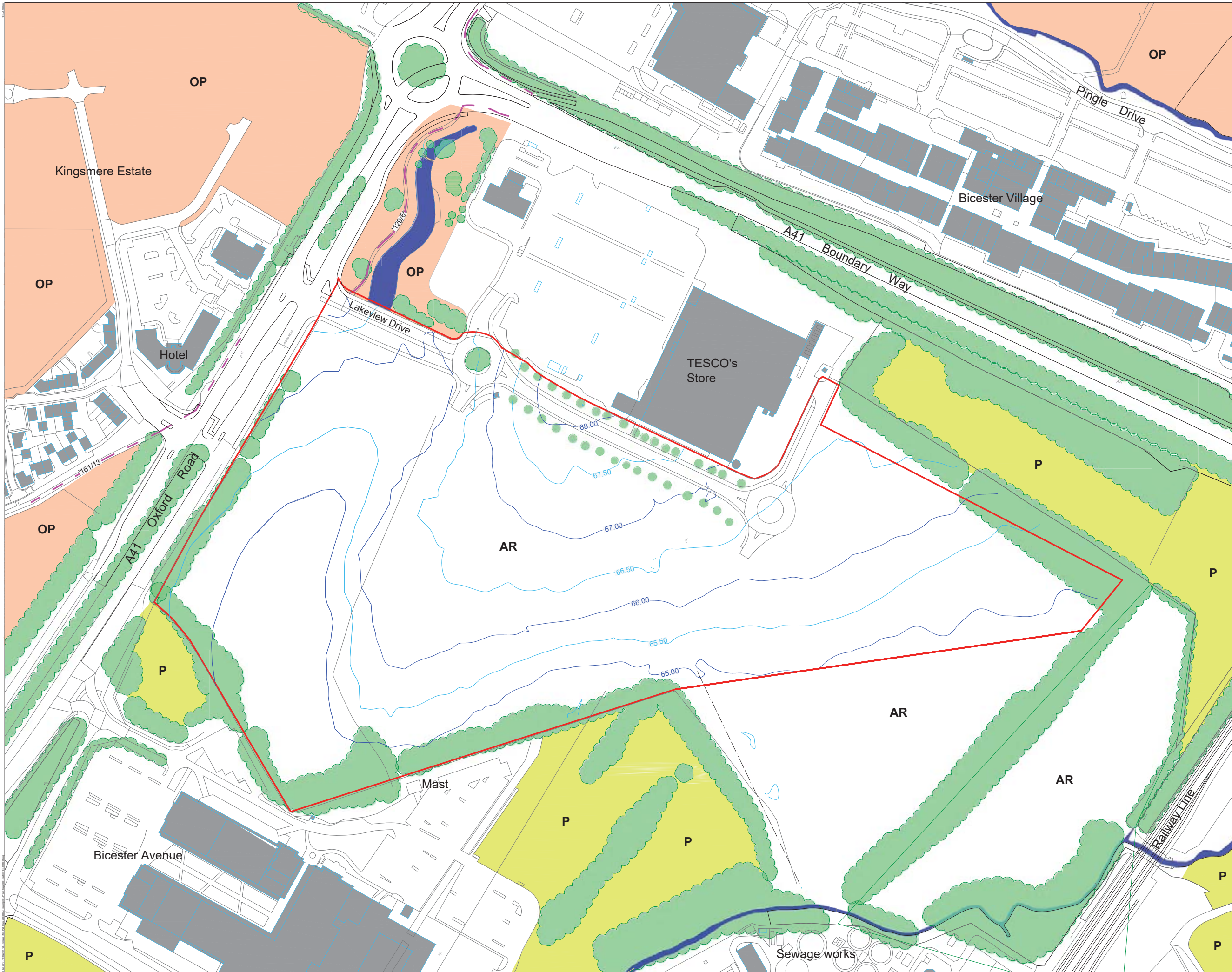
**H | E | D**  
 Hyland Edgar Driver

Landscape Architects and Urban Designers  
 One Wessex Way Colden Common Winchester Hampshire SO21 1WG  
 Telephone 01962 711600 Facsimile 01962 713945









PROJECT  
 Bicester Office Park

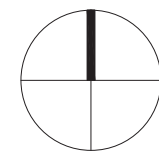
SUBJECT  
 Landscape Character Plan

DATE: 24.04.17 DRAWN BY: ZC  
 SCALE: 1:2,000 @ A1 CHECKED BY: IN  
 DRAWING NUMBER: HED.1288.002 REVISION: A  
 DRAWING STATUS: B  
 A - PRELIMINARY B - SUITED FOR PLANNING C - SUITED FOR DESIGN D - SUITED FOR TENDERS  
 E - SUITED FOR APPROVAL F - SUITED FOR CONSTRUCTION G - AS BUILT



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- Legend-**
-  Site Boundary
  -  Existing Watercourse
  -  Existing Significant Vegetation
  -  P Pasture
  -  AR Arable Land
  -  OP Open Space (Grass)
  -  Existing Footpath
  -  Existing Contour



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A Updated Red Line Boundary and Open Space - RK 28.08.17  
REVISIONS

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PROJECT  
Bicester Office Park

SUBJECT  
Site Appraisal Plan

DATE	24.04.17	DRAWN BY	ZC
SCALE	1:1,250 @ A1	CHECKED BY	IN
DRAWING NUMBER	HED.1288.003	REVISION	A
DRAWING STATUS	A - PRELIMINARY    B - ISSUED FOR PLANNING    C - ISSUED FOR DESIGN INFORMATION    D - ISSUED FOR TENDER E - ISSUED FOR APPROVAL    F - ISSUED FOR CONSTRUCTION    G - AS BUILT		

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Legend-

-  Site Boundary
-  Development Zone
-  Contour line
-  Public Rights of Way
-  Visual Appraisal Photographs
-  55m - 59m
-  60m - 64m
-  65m - 69m
-  70m - 74m
-  75m - 79m
-  80m - 84m
-  85m - 89m
-  90m - 94m
-  95m - 99m
-  100m - 104m
-  105m - 109m
-  110m - 114m
-  +115m



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A Updated Red Line Boundary - RK 28.06.17

REVISIONS

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PROJECT  
Bicester Office Park

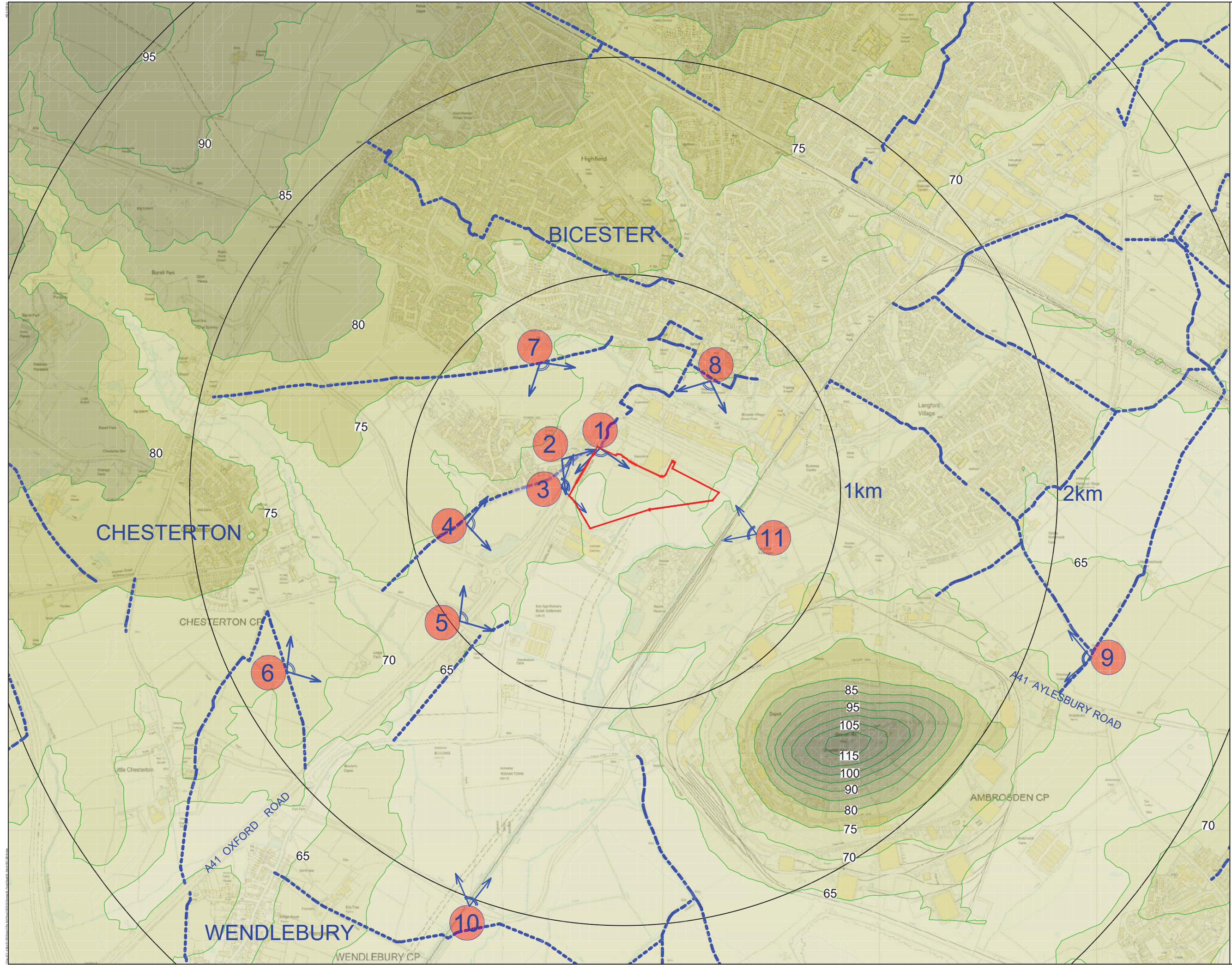
SUBJECT  
Visual Appraisal Plan

DATE 24.04.17 DRAWN BY ZC

SCALE 1:8,000 @ A1 CHECKED BY IN




DRAWING NUMBER HED.1288.004 REVISION A

DRAWING STATUS  
A - PRELIMINARY B - SUITED FOR PLANNING C - SUITED FOR DESIGN PERMITTING D - SUITED FOR TENDER  
E - SUITED FOR APPROVAL F - SUITED FOR CONSTRUCTION G - AS BUILT



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Legend

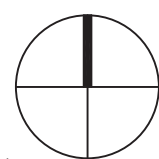
-  Site Area
-  Zone of Visual Influence  
Baseline  
67.291 AOD
-  Visual Appraisal Photograph locations  
(1-10 inclusive)

Notes:  
The application site is divided into 6 distinct zones, with varying height profiles.

The baseline ZVI is setup for a random location, 2m above the existing ground level. This equates to 67.291 AOD.

Visual barriers of existing urban areas and woodlands have been given heights as shown below:

- Settlement Residential - 10m high
- Settlement Commercial - 14m high
- Roadside planting and Woodland - 15m high



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A Updated Red Line Boundary - RK 28.06.17

REVISIONS

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PROJECT  
Bicester Office Park

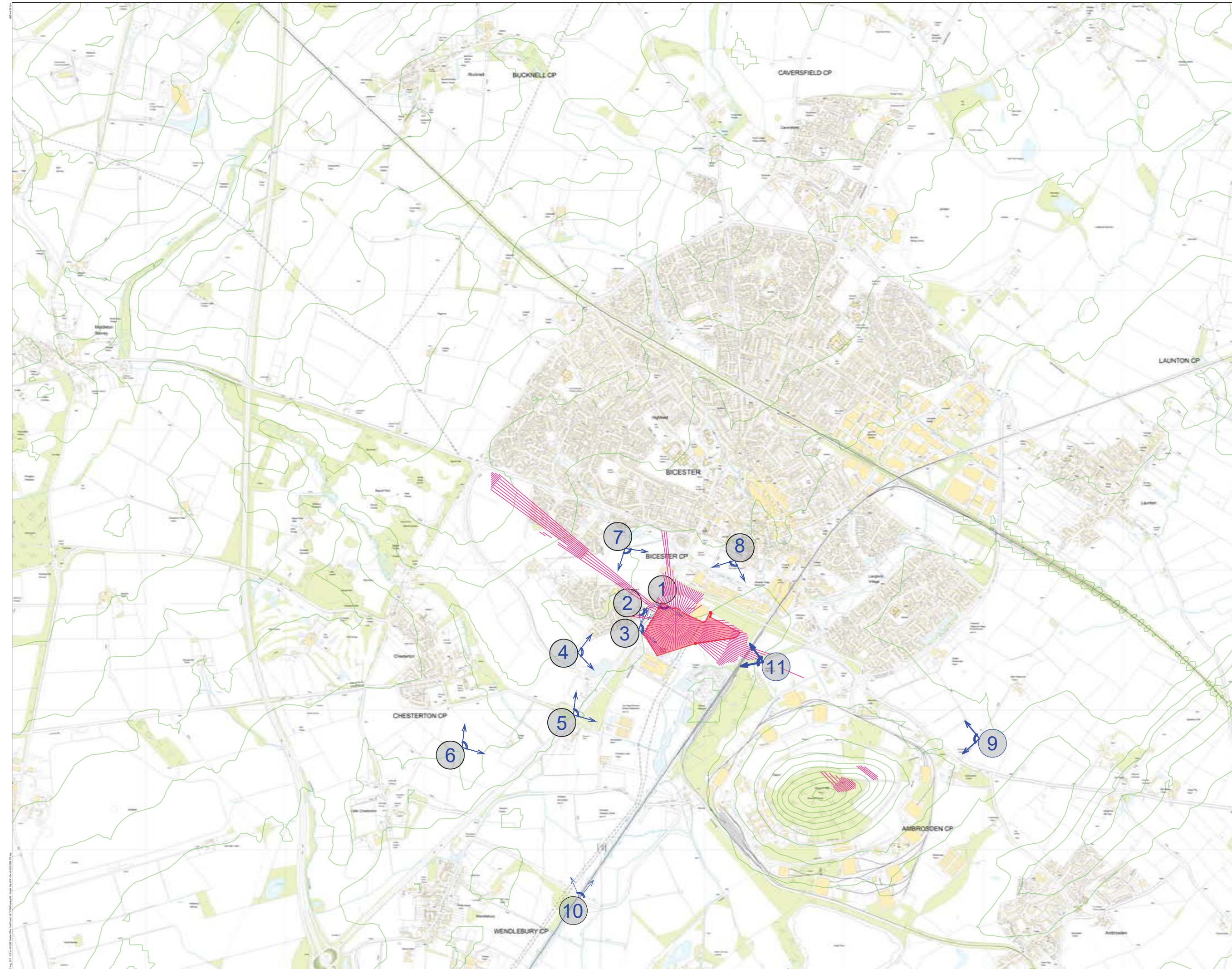
SUBJECT  
Baseline Zone of Visual Influence  
67.291 AOD (Ground Level + 2.0m)

DATE 01.06.17 DRAWN BY AW

SCALE 1:1,250 @ A1 CHECKED BY IN




DRAWING NUMBER HED.1288.005 REVISION A

DRAWING STATUS  
 A - PRELIMINARY    B - READY FOR PLANNING    C - READY FOR DESIGN    D - READY FOR BIDDING  
 E - READY FOR APPROVAL    F - READY FOR CONSTRUCTION    G - AS BUILT



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**Legend**

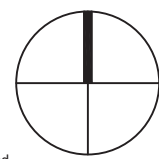
-  Site Area
-  Zone of Theoretical Visibility  
Zone D Building 7  
81.50m AOD
-  Visual Appraisal Photograph locations  
(1-10 inclusive)

**Notes:**  
 The application site is divided into 6 distinct zones, with varying height profiles.

This ZTV is setup for the roof level of the Building 7 in Zone D, which equate to 81.50m AOD for the top of roof level.

Visual barriers of existing urban areas and woodlands have been given heights as shown below:

- Settlement Residential - 10m high
- Settlement Commercial - 14m high
- Roadside planting and Woodland - 15m high



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A Updated Red Line Boundary - RK 28.06.17

REVISIONS

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 Telephone: 01962 711600, Facsimile: 01962 713845

PROJECT  
 Bicester Office Park

SUBJECT  
 Zone of Theoretical Visibility  
 Zone D - Top of Roof level

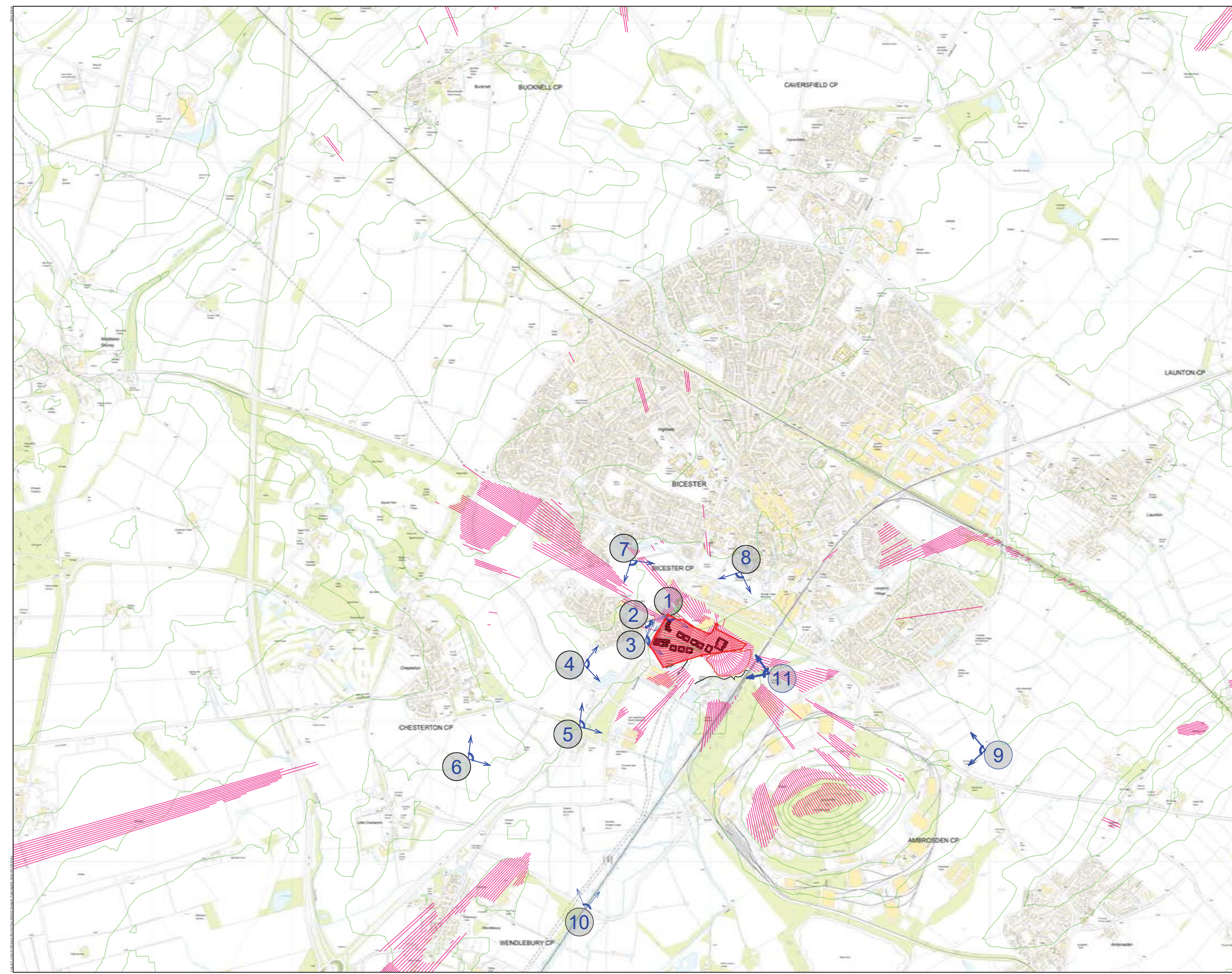
DATE: 01.06.17 DRAWN BY: AW

SCALE: 1:1,250 @ A1 CHECKED BY: IN

DRAWING NUMBER: HED.1288.007 REVISION: A

DRAWING STATUS




- A - PRELIMINARY
- B - SAVED FOR PLANNING
- C - SAVED FOR PERMITS
- D - SAVED FOR TENDERS
- E - SAVED FOR APPROVAL
- F - SAVED FOR CONSTRUCTION
- G - AS BUILT





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Legend

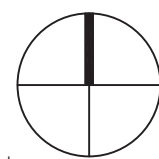
-  Site Area
-  Theoretical Zone of Visibility  
Zone F Building 11  
85.00m AOD
-  Visual Appraisal Photograph locations  
(1-10 inclusive)

Notes:  
The application site is divided into 6 distinct zones, with varying height profiles.

This ZTV is set up for the roof level of the Building 11 in Zone F, which equate to 85.00m AOD for the top of roof level.

Visual barriers of existing urban areas and woodlands have been given heights as shown below:

- Settlement Residential - 10m high
- Settlement Commercial - 14m high
- Roadside planting and Woodland - 15m high



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A Updated Red Line Boundary - RK 28.06.17  
REVISIONS

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Telephone: 01962 711600 Facsimile: 01962 713945

PROJECT  
Bicester Office Park

SUBJECT  
Zone of Theoretical Visibility  
Zone F - Top of Roof

DATE: 01.06.17 DRAWN BY: AW  
SCALE: 1:1,250 @ A1 CHECKED BY: IN  
DRAWING NUMBER: HED.1288.006 REVISION: A

DRAWING STATUS  
A - PRELIMINARY B - READY FOR PLANNING C - READY FOR PERMITS / VARIATIONS D - READY FOR TENDERS  
E - READY FOR APPROVAL F - READY FOR CONSTRUCTION G - AS BUILT



BICESTER TOWN CENTRE

BICESTER VILLAGE EXTENSION

KINGSMERE RESIDENTIAL DEVELOPMENT

BICESTER VILLAGE

TESCO

AYLESBURY

A41

A41

J9, M40

A Updated Open Space - RK 28.08.17  
REVISIONS

**H | E | D**

Hyland Edgar Driver

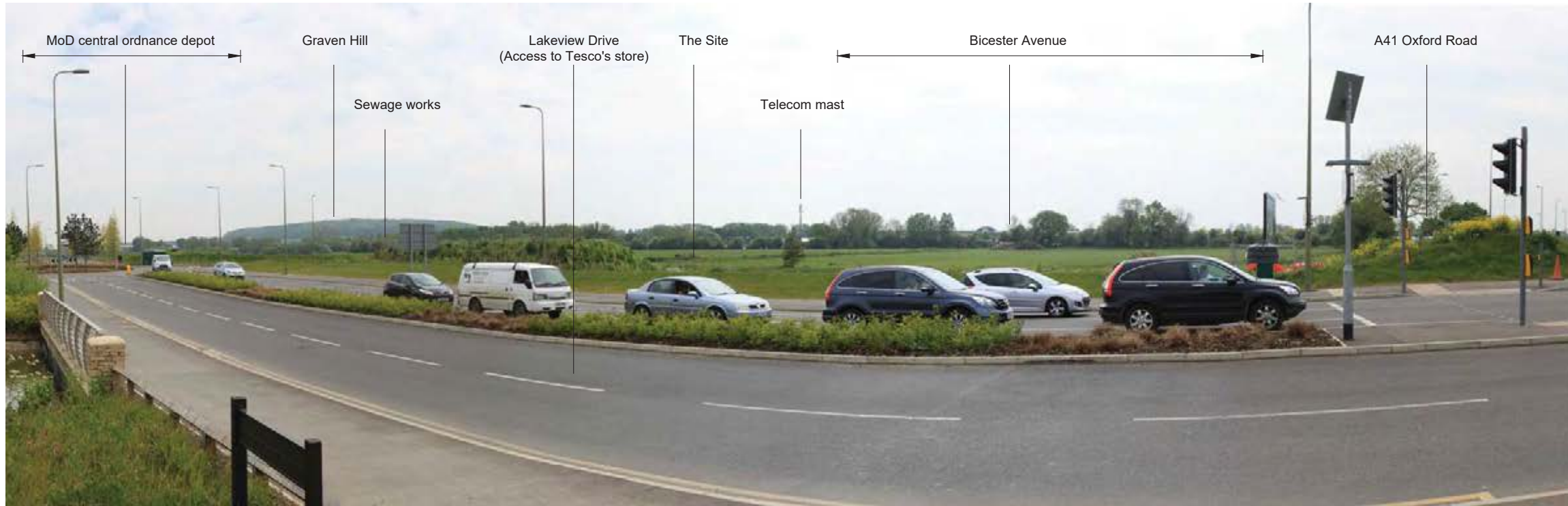
Landscape Architects and Urban Designers  
The Haven Valley, Filton, Claverton, Bath, Somerset, BA2 9BN  
Telephone 01225 111800 - Fax 01225 110000

PROJECT  
BICESTER OFFICE PARK  
Bicester

WORK TYPE  
Illustrative Masterplan

DATE	28.08.17	DESIGNED BY	ZC
TITLE	NTS @ A1	CHECKED BY	IN
DRAWING NUMBER	HED 1288.101	REVISION	A
DRAWING SCALE			

A - PRELIMINARY    B - BASED UPON PLANNING    C - DEVELOPER REVIEW  
 D - FORS FOR APPROVAL    E - BASIS FOR CONSTRUCTION    F - AS BUILT



View Location 1 - From Lakeview Drive looking south



View Location 2 - From entrance to Kingsmere Estate looking south east

PROJECT Bicester Office Park Phase 2		EASTINGS & NORTHINGS COORDINATES and DIRECTION OF VIEW <b>Viewpoint 1</b> - 51.891436 N, -1.162738 W <b>Viewpoint 2</b> - 51.890931 N, -1.165335 W		<b>Bicester Office Park Phase 2</b>
SUBJECT Viewpoint 1 & 2		ADD CAMERA HEIGHT 1.65m above ground level		
DRAWING NUMBER HED.1288.201		CAMERA and LENS SETTINGS Cannon EOS 500D digital camera with 18-55mm lens set at 50mm focal length		
DATE May 2017		DATE and TIME, WEATHER and LIGHTING CONDITIONS -		
REVISION -		SCALE 1:1 @A3		Drawing Status For Information
Landscape Architects <b>H E D</b> Hyland Edgar Driver				



View Location 3 - From the A41 Oxford Road looking north east



View Location 4 - From Whitelands Road looking east

PROJECT <b>Bicester Office Park Phase 2</b>		EASTINGS & NORTHINGS COORDINATES and DIRECTION OF VIEW <b>Viewpoint 3 - 51.889901 N, -1.165332 W</b> <b>Viewpoint 4 - 51.888391 N, -1.191816 W</b>		<b>Bicester Office Park Phase 2</b>
SUBJECT <b>Viewpoint 3 &amp; 4</b>		ADD CAMERA HEIGHT <b>1.65m above ground level</b>		
DRAWING NUMBER <b>HED.1288.202</b>		CAMERA and LENS SETTINGS <b>Cannon EOS 500D digital camera with 18-55mm lens set at 50mm focal length</b>		
DATE <b>May 2017</b>		DATE and TIME, WEATHER and LIGHTING CONDITIONS -		
REVISION -		SCALE <b>1:1 @A3</b>		Drawing Status <b>For Information</b>
LANDSCAPE ARCHITECTS <b>H E D</b> Hyland Edgar Driver		Revisions		



View Location 5 - From A41 overbridge looking north east



View Location 6 - From footpath 161/3 looking north east

PROJECT <b>Bicester Office Park Phase 2</b>		EASTINGS & NORTHINGS COORDINATES and DIRECTION OF VIEW <b>Viewpoint 5 - 51.884386 N, -1.172422W</b> <b>Viewpoint 2 - 51.882374 N, -1.183790 W</b>		<b>Bicester Office Park Phase 2</b>	
SUBJECT <b>Viewpoint 5 &amp; 6</b>		ADD CAMERA HEIGHT -			
DRAWING NUMBER <b>HED.1288.203</b>		REVISION -			
DATE <b>May 2017</b>		CAMERA and LENS SETTINGS -			
SCALE <b>1:1 @A3</b>		DATE and TIME, WEATHER and LIGHTING CONDITIONS -		Drawing Status <b>For Information</b>	
Landscape Architects <b>H E D</b> Hyland Edgar Driver					



View Location 7 - From statutory footpath 129/7 looking east towards the site

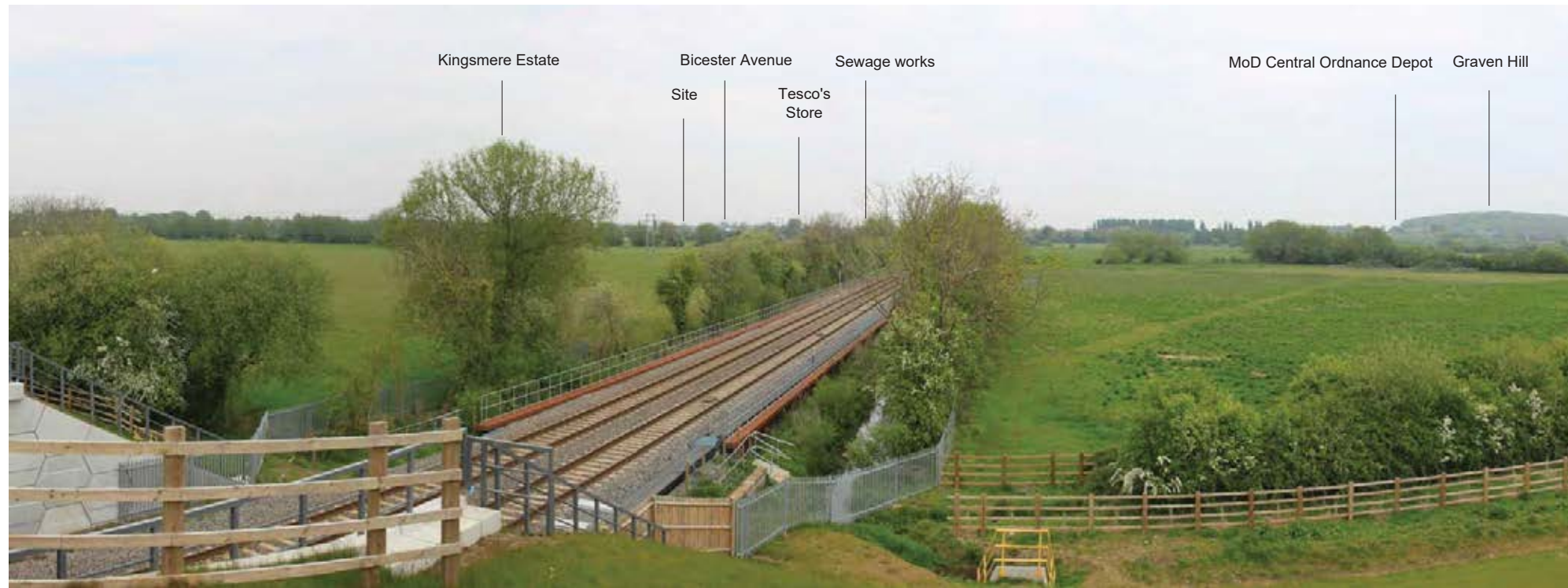


View Location 8 - From statutory footpath 129/6a looking south towards the site

PROJECT <b>Bicester Office Park Phase 2</b>		EASTINGS & NORTHINGS COORDINATES and DIRECTION OF VIEW <b>Viewpoint 7 - 51.894478 N, -1.166986 W</b> <b>Viewpoint 8 - 51.893868 N, -1.154790 W</b>		<b>Bicester Office Park Phase 2</b>
SUBJECT <b>Viewpoint 7 &amp; 8</b>		ADD CAMERA HEIGHT -		
DRAWING NUMBER <b>HED.1288.204</b>		CAMERA and LENS SETTINGS -		
DATE <b>May 2017</b>		DATE and TIME, WEATHER and LIGHTING CONDITIONS -		
REVISION -		SCALE <b>1:1 @A3</b>		Drawing Status <b>For Information</b>
LANDSCAPE ARCHITECTS <b>H E D</b> Hyland Edgar Driver				



View Location 9 - From statutory footpath 105/1 looking west towards the site



View Location 10 - From Langford Lane overbridge crossing main railway line looking north towards the site

PROJECT Bicester Office Park Phase 2		EASTINGS & NORTHINGS COORDINATES and DIRECTION OF VIEW <b>Viewpoint 9</b> - 51.882586N, -1.130105 W <b>Viewpoint 10</b> - 51.872652 N, -1.172280 W		<b>Bicester Office Park Phase 2</b>
SUBJECT Viewpoint 9 and 10		ADD CAMERA HEIGHT -		
DRAWING NUMBER HED.1288.205		CAMERA and LENS SETTINGS -		
DATE May 2017		DATE and TIME, WEATHER and LIGHTING CONDITIONS -		
REVISION -		SCALE 1:1 @A3		
LANDSCAPE ARCHITECTS <b>H E D</b> Hyland Edgar Driver				Drawing Status For Information
				Revisions

Sewage works

Site

Tesco's foodstore

Main Railway Line

Properties on Kingsmere Estate



View Location 11 - From northern edge of future Graven Hill residential development area.

PROJECT Bicester Office Park Phase 2	EASTINGS & NORTHINGS COORDINATES and DIRECTION OF VIEW <b>Viewpoint 11</b> - 51.887700N, -1.152569 W
SUBJECT Viewpoint 11	ADD CAMERA HEIGHT -
DRAWING NUMBER HED.1288.206	REVISION -
DATE August 2017	CAMERA and LENS SETTINGS -
Landscape Architects <b>H   E   D</b> Hyland Edgar Driver	SCALE 1:1 @A3
	DATE and TIME, WEATHER and LIGHTING CONDITIONS -

**Bicester Office Park  
Phase 2**

Drawing Status For Information	Revisions
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# ES Volume II: Technical Appendices

## Appendix 12.2: Legislative and Planning Policy Context

# LANDSCAPE AND VISUAL IMPACT

## Appendix 12.2: PLANNING POLICY AND GUIDANCE

**12.1.1** This appendix describes the landscape related planning legislation and policy that are applicable to the development site, its context and to the proposed land use. The extents and locations of the relevant various planning policy designations discussed in Chapter 12 and are shown on HED.1288.001, Site Context Plan.

### National Legislation

#### *The Countryside and Rights of Way Act 2000*

**12.1.2** The Act provides a new right of public access on foot to areas of open land comprising mountain, moor, heath, down, and registered common land, and contains provisions for extending the right to coastal land. The 'right to roam' doesn't apply to cultivated land and therefore isn't applicable to this site.

**12.1.3** The act reviews and protects statutory rights of way which are defined as paths on which the public have a legally protected right to pass and re-pass. There are a number of statutory footpaths in the vicinity of the site but none that cross the site, these will need careful consideration to ensure any impact is minimized and they are well integrated into the scheme.

### National Planning Policy guidance

#### *National Planning Policy Framework (NPPF)*

**12.1.4** The National Planning Policy Framework was published in March 2012 and sets out the government's planning policies for England and how these are expected to be applied.

#### *Requiring good design*

**12.1.5** Section 7 of the policy looks at the design of new developments, and states that 'good design is a key aspect of sustainable development, is indivisible from good planning, and should contribute positively to making places better for people'.

**12.1.6** The principles of good design in new developments are outlined as:

- High functionality that adds to the overall quality of the area for the lifetime of a development;
- The establishment of a strong sense of place and local distinctiveness, using streetscapes and buildings to create visually attractive and comfortable places to live, work and visit;
- site optimisation to accommodate development, create and sustain an appropriate mix of uses (including green and other public space) and the support of local facilities and transport networks;
- responding to local character and history to reflect the identity of local surroundings and materials, but allowing for appropriate innovation; and;
- the creation of safe and accessible environments where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion.

**12.1.7** The Proposed Development will have to be mindful of these aims with a high quality architectural and public realm environment.

#### *Conserving and enhancing the natural environment*

**12.1.8** Section 11 of the policy covers the protection of the wider landscape stating that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued

landscapes, geological conservation interests and soils. This policy is carried into local plan policies and give greater detail to specific context of the location of the district.

### County and District Planning Policy guidance

#### *Local Plan Policy*

**12.1.9** The site is within the administrative boundary of Cherwell District Council with the current forward planning policy document as Cherwell Local Plan 2011-2031 Part 1 (incorporating Policy Bicester 13 re-adopted on 19 December 2016) (part 1 of 3).

**12.1.10** The following designations apply to the site and have been considered within the proposals. These are identified on drawing Site Context Plan HED.1288.001.

#### *Strategic Development: Bicester 4 – Bicester Business Park*

**12.1.11** Policy Bicester 4: C.65 and C.66 deals with the provision of strategic employment space to the south of Bicester Town. It identifies an area for high quality B1 office development on 29.5 ha of land to the south and east of the A41 and north of the existing Bicester Avenue Garden Centre retail park.

**12.1.12** The policy sets out certain criteria for shaping the development, specifically related to the landscape and environment are:

- Open space – structured open space and planting that provide a strong landscape setting, support SUDS and improvements to the microclimate.
- A distinctive commercial development that provides a gateway into the town.
- A high quality design and finish, with careful consideration given to layout, architecture, materials, colourings and building heights to reduce overall visual impact.
- Layout that enables a high degree of integration and connectivity between new and existing development particularly the mixed use urban extension at South West Bicester to the west, the garden centre to the south, and, to the north, Bicester town centre and Bicester Village retail outlet.
- Development proposals to be accompanied and influenced by landscape/visual and heritage impact assessments.
- Adoption of a surface water management framework to reduce surface water run off to greenfield rates.
- Structural planting and landscape proposals within the site to provide for the enhancement, restoration and creation of wildlife corridors and to limit visual impact of new buildings and car parking on the existing character of the site and its surroundings, including viewpoints along the A41 to the west and north (where the road is more elevated) and along the southern boundary (important in longer distance views of the site).
- Provision of opportunities for Green infrastructure links beyond the development site to the wider town and open countryside.
- Biodiversity should be preserved and enhanced.
- The provision of public art to enhance the quality of the place, legibility and identity.

**12.1.13** The whole of the application site is covered by this policy and the intention is to adhere to its requirements and exceed in the provision of a high quality office development.

#### *Conservation Areas and Scheduled Ancient Monuments*

**12.1.14** This is covered by Policy ESD15; The Character of the Built and Historic Environment. And aims to secure high quality design to protect and enhance the character of the district.

# LANDSCAPE AND VISUAL IMPACT

12

**12.1.15** The policy aims to “protect our Conservation Areas and other heritage assets from harmful growth...” this will be done by ensuring new development proposals are:

- designed to deliver high quality safe, attractive, durable and healthy places to live and work in.
- delivering buildings, places and spaces that can adapt to changing social, technological, economic and environmental conditions.
- Respect the traditional pattern of routes, spaces, blocks, plots, enclosures and the form, scale and massing of buildings.

**12.1.16** There are no Scheduled Ancient Monuments (SAM), Conservation Areas or Listed Buildings on or directly adjacent to the site.

**12.1.17** A SAM is located approximately 650m to the south west of the boundary of the development site, and consists of the site of a Roman town. There will be no physical or visual impact on this designation.

**12.1.18** A Conservation Area is located approximately 420m to the north east of the site boundary and is a Conservation Area that covers the whole of the centre of the town of Bicester. A further Conservation area for the village of Chesterton lies over a 1km to the west. Neither of these two areas will be affected physically or visually.

**12.1.19** A single Listed Building is located approximately 550m to the south east of the site boundary, this is part of Langford Park Farm. There are a number of further listed buildings in the town centre of Bicester which are within the Conservation Area previously mentioned. None of the Listed Buildings would be physically affected by the proposals or be visible from the site.

## **Statutory Rights of Way**

**12.1.20** Rights of Way are legally recorded public highways across privately owned land. They are all documented on a legal record known as the Definitive Map and Statement maintained by the County Council authority.

**12.1.21** There are no Public Rights of Way (PROW) that cross the development site and therefore the proposals would not directly impact on any of the local definitive Rights of Way.

**12.1.22** There is only one PROW (129/6) close to the site and is shown on drawing HED.1288.005 which starts in the center of Bicester town and runs south west around the edge of Bicester Village development and then around the Kingsmere estate before changing to 161/13 and 161/2.

**12.1.23** There would be views from this footpath for a short length as it comes close to the corner of the site on the A41 Oxford Road, these are discussed further in the visual section of this report.

## **Tree Protection Orders (TPOs)**

**12.1.24** Tree Preservation Order's (TPO) are created and protected under the Town and Country Planning Act 1990 and the Town and Country Planning (Tree Preservation) (England) Regulations 2012.

**12.1.25** A TPO is made by a Local Planning Authority to protect specific trees or a particular area, group or woodland from deliberate damage and destruction. Felling, lopping, topping, uprooting or otherwise willful damaging of trees cannot occur without the permission of the Local Planning Authority with exceptions.

**12.1.26** None of the trees on the site or adjacent to the boundary are covered by a TPO.

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## Appendix 12.3: Assessment Methodology

# LANDSCAPE AND VISUAL IMPACT

## Appendix 12.3 Assessment Methodology

### Description of the landscape and visual baseline

#### Landscape baseline

- 12.1.1** For the purposes of this assessment the terms landscape and townscape are interchangeable e.g. landscape character assessment can be applied to the assessment of landscape character within rural, urban or coastal areas.
- 12.1.2** The landscape in the study area has been described using a combination of desk-based study and site survey. This has examined physical landscape elements such as vegetation and topography in addition to landscape character and its perceptual qualities.
- 12.1.3** Identification of the nature of the landscape receptor (sensitivity) may also form part of the baseline, particularly if external studies have been commissioned or completed by the Local Planning Authority (or Competent Authority). These studies may include evaluation of landscape value and or quality and condition.

#### Physical landscape

- 12.1.4** The topographical data has been generated from Ordnance Survey (OS) base. The location, extent and height of existing vegetation have been recorded from the OS 1:25,000 scale raster file, from Google Earth and site observation.

#### Landscape character

- 12.1.5** Landscape character describes the different types of landscape within any given area, taking account of topography, vegetation, built form, settlement patterns, land use, local materials, hydrology and other landscape and cultural/historical features. Landscape Character Assessment (NCA) is the process by which landscape character is appraised and subdivided into homogenous units.
- 12.1.6** The baseline for the development site and wider study area has been extensively studied at national, county and district scale, as part of national and county landscape character initiatives. The relevant studies are:
1. National Character Areas;
  2. County LCAs; and
  3. District LCAs.
- 12.1.7** As required, these existing studies have been further developed using desk-based study and site survey work carried out in accordance with the 'Landscape Character Assessment Guidelines for England and Scotland' (2002).

#### Landscape Value

- 12.1.8** This is the relative value attached to different landscapes by society. The value placed on a particular landscape may vary for different individuals within that society and value can be applied to whole landscapes, elements within it and particular aesthetic and perceptual dimensions that it provides.
- 12.1.9** Landscapes are valued at community, national or international levels, noting that undesignated landscapes (local or national level) do not necessarily have no value and may contain valued elements.

- 12.1.10** The baseline has recorded landscape value through a review of the existing landscape designations. Areas of undesignated landscape have been assessed through a combination of desk and site based study to examine a range of factors including landscape quality and condition, scenic quality, rarity, representativeness, conservation interests, recreation value, perceptual aspects and associations. The criteria used for the assessment of landscape quality is described below.

#### Landscape Sensitivity

- 12.1.11** Some local authorities have developed studies to look at landscape sensitivity as part of a wider landscape character assessment, however more generally this forms part of the assessment process.
- 12.1.12** Landscape sensitivity is a measure of the value of a particular landscape and its capacity to accept change resulting from a particular development type. Landscape sensitivity identifies the vulnerability of each landscape unit to change through the introduction of the new features, such as housing, or the loss of existing valued features such as mature hedgerows.
- 12.1.13** The GLVIA defines the sensitivity of a landscape as varying with a combination of:
1. Landscape sensitivity resulting from existing land use, the pattern and scale of the landscape/townscape;
  2. Visual sensitivity resulting from visual enclosure/openness of views, and distribution of visual receptors;
  3. The value placed on the landscape/townscape; and
  4. The scope for mitigation, which would be in character with the existing landscape/townscape.
- 12.1.14** The assessment has applied these descriptors to the Study Area landscape using a criteria range of **High, Medium and Low**.

**Table 4: Landscape Sensitivity Criteria**

Sensitivity rating	Criteria
High	Important/highly valued (components of the) landscape or landscapes of particularly distinctive character susceptible to relatively small changes.  <i>Examples include the highly valued, important AONB landscapes that are of high intrinsic quality with open character and open views of the proposed development.</i>
Medium	Landscape of moderately valued characteristics reasonably tolerant of changes.  <i>Examples include locally valued, undesignated rural landscapes with some intrinsic quality and with open views of the development.</i>
Low	Relatively degraded or low value landscape, the nature of which is potentially tolerant of substantial change.  <i>Examples include brownfield land that has been subject to a history of constant change with relatively few established features.</i>

#### Landscape Quality

- 12.1.15** Landscape Quality is part of the assessment and follows a GLV described methodology. The GLVIA defines landscape quality as the comparative value placed on a landscape or feature relative to its location, rarity or particular attributes. It considers the visual and physical attributes of the landscape, including ecological interest and cultural/heritage associations, identifying seven categories from Exceptional (National Park/AONB) to Damaged Landscapes (Derelict Land). The criteria used in the assessment are set out in Table 5 below.

# LANDSCAPE AND VISUAL IMPACT

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**Table 5: Landscape (and Townscape) Quality Criteria.**

Category	Criteria
High exceptional	Very strong landscape (urban) structure, characteristic patterns, balanced combination of landform and land cover. Appropriate management for land use and land cover. Extensive features worthy of conservation. Unique sense of place. No detracting features.
High	Strong landscape (urban) structure, characteristic patterns and balanced combination of landform and land cover. Appropriate management for land use and land cover but with potential scope to improve. Extensive features worthy of conservation. Strong sense of place. Occasional detracting features.
Good	Recognisable landscape (urban) structure, characteristic patterns and combinations of landform and land cover are still evident. Some scope to improve management for land use and land cover. Frequent features worthy of conservation. Sense of place. Some detracting features.
Ordinary	Distinguishable landscape (urban) structure, characteristic patterns of landform and land cover often masked by land use. Scope to improve management for land use and land cover. Some features worthy of conservation. Some detracting features.
Poor	Weak landscape (urban) structure, characteristic patterns of landform and land cover are often masked by land use. Lack of management and intervention has resulted in degradation. Lack of features worthy of conservation. Frequent detracting features.
Very Poor	Degraded landscape (urban) structure, characteristic patterns of landform and land cover are masked by land use. Lack of management and intervention has resulted in degradation. Lack of features worthy of conservation. Extensive detracting features.
Damaged landscapes	Damaged landscape (urban) structure. Disturbed or derelict land requires treatment. Detracting features dominate.

## Visual baseline

### Identification of the visual receptors

**12.1.16** Baseline visual receptors have been identified using a combination of desk-based study and site survey. This has identified the following types of potential community, residential, employment and transport based receptor locations:

1. Public places e.g. playing fields, cricket club, church, school, Common Land;
2. Public Rights of Way e.g. footpaths, byways, and bridleways;
3. Residential e.g. detached, semi-detached, bungalow, terrace, apartment;
4. Workplaces e.g. business or commercial property; and
5. Transport routes e.g. classified and unclassified roads (country lanes), cycle routes.

### Recording the visual baseline

**12.1.17** All potential visual receptors within the study area have been considered. These key viewpoints demonstrate the wide range of potential baseline and development case views of the development site and the proposed development.

**12.1.18** Views from these locations have been documented in a structured and consistent manner. This process has used written descriptions and photographs to record the visual baseline. The viewpoint photographs have been taken in accordance with the Landscape Institute Advice Note 01/11. See Appendix 3.

**12.1.19** Due to the timing of the project, the visual assessment and the baseline photography have been undertaken in winter condition.

**12.1.20** For this study, the assessment of the 'worst case' winter condition was made.

**12.1.21** A description of the view and identification of the type, location and receptor sensitivity has been made through a site based visual assessment. This was undertaken during January 2017 by qualified and experienced landscape architects.

### Visual sensitivity

**12.1.22** This is another receptor attribute that, although forming part of the baseline information, is actually part of the assessment process. When determining the sensitivity of a visual receptor the following parameters are considered:

1. Location and context of the viewpoint;
2. Expectations and occupation/activity of the receptor;
3. Importance of the view; and
4. Degree of exposure to the view e.g. permanence versus transience.

**12.1.23** Visual sensitivity has been assigned using the criteria given in Table 6 (below) derived from the GLVIA:

**Table 6: Visual Sensitivity Criteria**

Sensitivity rating	Criteria
High	Receptors with a high interest in a visual environment that contains little, or none, of the proposed development/ development type.  <i>Examples include leisure users of public footpaths and open space in rural areas, residents with good quality rural views, and users of nationally or regionally significant viewpoints (including the AONB).</i>
Medium	Receptors with a moderate interest in a visual environment that contains some views of the proposed development/development type, or 'permanent' receptors with a high interest in a visual environment which is dominated by open and often close views of the proposed development/development type.  <i>Examples include pedestrians and recreational motorists on minor roads and people taking part in outdoor sport or receptors in locations where there are existing views of the proposed development site.</i>
Low	Receptors with passing or momentary interest in a visual environment, or 'transient' receptors with a high/moderate interest in a visual environment which is dominated by open and often close views of the proposed development/development type.  <i>Examples include commuting motorists and people at work with existing views of the proposed development site.</i>

## Assessment of landscape and visual effects

**12.1.24** This section describes the landscape and visual assessment methodology and how it has been applied to the construction and operational phases of the proposed development.

**12.1.25** The assessment methodology follows the standard GLVIA approach of assessing changes in the development case against the baseline condition.

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**12.1.26** Predicted effects have been identified at, or for each receptor, and the magnitude of the identified landscape and visual changes evaluated by professional judgement. The significance of these effects has been determined by the inter-relationship of nature of effect (magnitude) and the nature of receptor (sensitivity): a standard and accepted principle that is described in more detail below.

## Landscape assessment

**12.1.27** Landscape assessment identifies the likely scale and nature of change to individual landscape elements and characteristics, and any consequential effects on character resulting from the proposed development. Components of the landscape which have been examined in this assessment are:

1. Landscape character;
2. Landscape designations; and
3. Physical characteristics such as topography and vegetation.

**12.1.28** Once a potential impact on these components has been identified, an experienced based judgement of the nature of the predicted landscape effect has been made and recorded as:

1. Beneficial or adverse.
2. Direct or indirect.
3. Temporary/permanent.
4. Short, medium or long term.
5. Local/regional/national in scale.
6. Single or cumulative.

**12.1.29** The duration of effect would fall into the following categories:

1. Short term – 0-5 years e.g. partial clearance of vegetation for construction;
2. Medium term – 5-10 years e.g. loss of new hedgerows for construction but replanted;
3. Long term – 10-50 years e.g. loss of semi-mature woody vegetation for construction but replanted;
4. Permanent – 50+ years e.g. loss of vegetation where replacement vegetation would not achieve pre-construction dimensions within 50 years.

**12.1.30** The next step in the process uses experience based judgement to identify the magnitude of the potential change that would result from the identified landscape impact. The magnitude of the impact is the degree of change experienced by a receptor. The magnitude of landscape effects has been described using the criteria set out in Table 7 (below).

**Table 7: Magnitude of Impact on Landscape Criteria**

Magnitude Rating	Criteria
Major	Major alteration (loss/enhancement) to key elements/features/ characteristics of the baseline i.e. pre-development landscape and/or introduction of elements considered to be totally uncharacteristic/characteristic when set within the attributes of the receiving landscape.
Moderate	Partial alteration (loss/enhancement) to one or more key elements/features/ characteristics of the baseline i.e. pre-development landscape and/or introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic when set within the attributes of the receiving landscape.

Minor	Minor alteration (loss/enhancement) to one or more key elements/features/ characteristics of the baseline i.e. pre-development landscape and/or introduction of elements that may not be uncharacteristic when set within the attributes of the receiving landscape.
Negligible	Very minor alteration (loss/enhancement) to one or more key elements/features/characteristics of the baseline i.e. pre-development landscape and/or introduction of elements that are not uncharacteristic with the surrounding landscape.
No Change	No noticeable alteration (loss or gain) of key elements/features/ characteristics of the baseline.

**12.1.31** The significance of the predicted landscape effects has then been identified using a matrix form of evaluation. The thresholds of landscape effects significance criteria have been based on the matrix provided in Table 8, which is adapted from the guidance set out in the GLVIA<sup>1</sup>. Effects have been assigned one of the five categories of **No Change, Negligible, Minor, Moderate or Major** considering the magnitude of the change and the ability of the receptor to accommodate the proposed change (sensitivity).

**Table 8: Significance Thresholds for Landscape and Visual Effects**

Magnitude of potential change to receptors	Nature of the receptor (sensitivity to proposed change)		
	Low	Medium	High
Major	Minor/ Moderate	Moderate/ Major	Major
Moderate	Minor	Moderate	Moderate/ Major
Minor	Neutral/Minor	Minor	Minor/ Moderate
Negligible	Neutral	Neutral/Minor	Neutral/Minor
No Change	Neutral	Neutral	Neutral

**12.1.32** The matrix has been applied to both landscape and visual significance criteria to allow cross comparison of effects. The parameters for the significance category assigned for each identified landscape and visual effect are defined within the written assessment.

## Visual assessment

**12.1.33** The visual assessment has described the changes to the existing views resulting from the proposed facilities. This has used a written assessment supported by photographic analysis of the baseline views.

**12.1.34** For each viewpoint an experienced based judgment of the nature of the predicted visual effect has been made and recorded as:

1. Beneficial or adverse.
2. Direct or indirect.
3. Temporary/permanent.
4. Short, medium or long term.
5. Local/regional/national in scale.
6. Single or cumulative.

**12.1.35** The magnitude of the identified visual impact has been identified for receptors through a written assessment. This process used the following magnitude indicators as adapted from the GLVIA:

1. Extent – the extent of the baseline view that would be occupied by the development: full (unobstructed by vegetation, topography or intervening structures) or partial (obstructed to some extent vegetation) or glimpsed views.

<sup>1</sup> p139, The Institute of Environmental Assessment and Landscape Institute (2nd Edition 2002); Guidelines for Landscape and Visual Impact Assessment; Spon Press; London.

# LANDSCAPE AND VISUAL IMPACT

2. Proportion – what proportion of the development would be visible: full (all), most (more than 75%), half (50%), small amount (less than 25%) or none.
3. Contrast – how would the visible elements of the development relate to the remaining/adjoining features of the baseline landscape: high, medium or low levels of contrast?
4. Loss of features – what landscape features in the view would be lost/changed as a result of the proposed facilities?
5. Duration – temporary, permanent, intermittent or continuous e.g. transient (views which are normally viewed while in motion as in while travelling by train or car) and seasonal (views which will be subject to seasonal leaf cover).
6. Angle of view – direct (approximately head on), oblique (45 degrees to head on) or peripheral (greater than 45 degrees i.e. on the edge of vision).
7. Distance – measured in kilometres between the site and the receptor. View distance has been described as follows:
  - a. Short 0-100m;
  - b. Medium 100- 1000m;
  - c. Long 1000m or more.

**12.1.36** Using these indicators, an experience based judgement has been made for each visual receptor as to the degree of alteration in the baseline view that would result from the loss/change of baseline landscape elements and the introduction of the proposed facilities. The degree of alteration and the criteria used are shown in Table 9 below.

**Table 9: Visual Magnitude of Impact Criteria**

Category	Criteria
Major	Large scale changes that would alter the overall perception of the view.
Moderate	Changes to a view that would be readily noticeable but would not change the overall perception of the view.
Minor	Small scale visual changes that may be missed by the casual observer or receptor.
Negligible	Changes that would barely be perceptible to the naked eye.

**12.1.37** The significance of the identified visual effects has then been determined by the inter-relationship of magnitude of impact and receptor sensitivity as shown in Table 8. The parameters for the significance threshold assigned for each identified landscape and visual effect have been defined within the written assessment.

## Significance of the landscape and visual assessment

**12.1.38** The evaluation of the individual landscape and visual effects has assigned a relative degree of impact using a range of values that is consistent within this LVIA, across all LVIA projects that Hyland Edgar Driver undertake and in accordance with recognised standard industry practice. Significance must also be defined in terms of the overall assessment. This is to identify which of the landscape and visual impacts are considered important enough to be 'likely significant impacts' of the project.

**12.1.39** Neutral landscape and visual effects equate to a maintaining of the status quo and have been considered as not significant.

**12.1.40** Minor (Adverse or Beneficial) Landscape and visual effects have also been considered as not significant. Such effects represent very small scale impacts on the most sensitive landscape and visual receptors and small to larger scale changes on receptors of low sensitivity e.g. noticeable visual changes (deterioration/improvement) for low sensitivity receptors such as workers on the farmers.

**12.1.41** Moderate (Adverse or Beneficial) landscape and visual effects represent more noticeable changes on moderately sensitive receptors or small scale impacts on the most sensitive receptors. These have been considered significant when 'groupings' of these effects have occurred together e.g. noticeable changes to views from groups or large numbers of residential receptors.

**12.1.42** Major (Adverse or Beneficial) landscape and visual effects have been considered significant even if local and relatively small in extent. Such effects generally include the total loss or alteration of the key characteristics of landscape receptors, or large scale changes to the views of higher sensitivity visual receptors e.g. larger scale noticeable changes to views from the known viewpoints in the AONB's.



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## Appendix 12.4: Photography Methodology

# LANDSCAPE AND VISUAL IMPACT

## Appendix 12.4: Photography Methodology

- 12.1.0** Photographs have been taken in accordance with the Landscape Institute guidelines using a Canon EOS 1000 digital camera fitted with a 28-55mm or 16-85mm zoom lens set at a defined focal length.
- 12.1.1** The Landscape Institute guidelines state that 'there is no single best focal length that works best under all circumstances'.
- 12.1.2** The photographer has therefore selected the lens focal length to provide the best balance between the detail captured and field of view for each viewpoint.
- 12.1.3** The camera has been fixed to a tripod at a height of 1.6m above the existing and proposed ground levels.
- 12.1.4** Images have been taken either as single frames or as panoramas. The panoramic images have been taken sequentially from a viewpoint at the same vertical angle as a series of images suitable for merging. A generous overlap of approximately one half between adjacent images has been provided to aid the mosaicing process.
- 12.1.5** From each location the following information has been recorded for the sets of images:
- Camera lens setting;
  - Weather conditions;
  - Date and time;
  - GPS Location.

# ES Volume II: Technical Appendices

## Appendix 13.1: Flood Risk Assessment

## **Bicester Office Park**

### **Flood Risk Assessment**

**040031**

14 December 2017

Revision 03

Revision	Description	Issued by	Date	Checked
00	Draft for Comment	CJ	11/08/17	DKR
01	Final Draft for Comment	CJ	17/08/2017	DKR
02	For Planning	CJ	26/09/2017	DKR
03	For Planning, updated for 2017 topographic survey	CJ	14/12/2017	ADT

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author **Clare Jones**

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date **14/12/2017**

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approved **Alan Travers**

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signature




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date **14/12/2017**

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## Abbreviations

Term	Definition
AEP	Annual Exceedance Probability
EA	Environment Agency
FRA	Flood Risk Assessment
LLFA	Lead Local Flood Authority
mOD	Metres above Ordnance Datum
NPPF	National Planning Policy Framework
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage System

## Glossary

Term	Definition
Annual Exceedance Probability (AEP)	The Probability that a storm event will be exceeded in any given year
Attenuation	A method to reduce a flood peak to prevent flooding, often utilising temporary storage, but increasing the duration of the flow
Design Flood Level	This is the level of flooding that flood defences or mitigation measures are designed against. This is typically the 1% (1 in 100) flood level with climate change allowance.
Discharge	The rate of flow of water measured in terms of volume per unit time
Flood Defence	A natural or man-made infrastructure used to prevent certain areas from inundation from flooding, and / or the provision of flood warning systems
Floodplain	Area of land adjacent to a water course which water flows or is stored during a flood event, or would otherwise be flooded in the absence of flood defences
Flood Risk	The level of risk to personal safety and damage to property resulting from flooding due to the frequency or likelihood of flood events
Flood Risk Assessment (FRA)	An assessment of the flood risks to the proposed development over its expected lifetime and the possible flood risks to the surrounding areas, assessing flood flows, flood storage capacity and runoff
Flood Warning Systems (FWS)	A system by which to warn the public of the potential of imminent flooding. This is typically linked to a flood forecasting system
Fluvial Flooding	Related or connected to a watercourse (river or stream)
Functional Floodplain	Greater than a 1 in 20 annual probability of flooding in any year
Groundwater	Water present within underground strata known as aquifers
Groundwater Flooding	Water occurring below ground in natural formations (typically rocks, gravels and sands)
Impermeable Surface	A surface that does not permit the infiltration of water and, therefore, generates surface water runoff during periods of rainfall
Mitigation	Actions taken to reduce either the probability of flooding or the consequences of flooding or a combination of the two
Red line boundary	Boundary drawn to indicate the site area on which the planning application is based
Residual Risk	The risk that remains after risk management and mitigation measures have been implemented
Return Period	The average frequency of a specified condition. An 'n' year event is one that occurs on average over the long term, once every 'n' years
Risk	Risk is the probability that an event will occur and the impact (or consequences) associated with that event
Runoff	Water flow over surfaces to the drainage system. Runoff occurs if the ground is impermeable or if permeable ground is saturated.
Strategic Flood Risk Assessment (SFRA)	An SFRA is the assessment and 'categorisation' of flood risk on an area-wide basis in accordance with PPS25
Surface Water Flooding	Surface water flooding occurs when the volume of water is unable to filtrate through the ground to enter drainage systems, and therefore runs quickly off land and results in localised flooding. This type of flooding is usually associated with intense rainfall.
Sustainable Drainage Systems (SuDS)	SuDS are used as a strategy to manage surface water in a sustainable manner or least damaging solution through management practices and physical structures.



# 1 Executive Summary

BuroHappold Engineering (BHE) has prepared this FRA on behalf of Scenic Land Developments Limited to support the Outline Planning Application for new office buildings and car parking at Bicester Office Park site. This FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and demonstrates that with the proposed mitigation measures, the development is considered safe up to the 1 in 100 flood event with allowance for climate change and does not increase flood risk elsewhere for the lifetime of the development. A summary of the key findings of the Flood Risk Assessment are provided in **Table 1-1**.

**Table 1-1 Summary of the key findings**

Subject	Element	Findings
Site Flood Risk	Fluvial	The majority of the site lies in Flood Zone 1. However, along the south eastern boundary, the site lies within 2, 3a and 3b. Areas along south eastern boundary are defined as 'Very low hazard', 'Danger for some' and small localised spots where it is classified as 'Danger for most'.
	Ground Water	Low risk of flooding. Further ground investigation recommended.
	Surface Water	The majority of the site is at very low risk of surface water flooding. There are areas of low to high risk of flooding associated with the drainage ditch crossing the site and low lying areas. Areas which pose a 'Danger for most' are associated with the drainage ditch. 'Very Low Hazard' and 'Danger for some' areas occur along south eastern and northern boundary.
	Sewers and Artificial Sources	Low risk of flooding
Planning Requirements	Vulnerability Classification	Office buildings are classified as 'less vulnerable', appropriate for Flood Zone 1, 2 and 3a. Car parking located in Flood Zone 3b is considered appropriate by the EA provided no ground raising.
	Sequential Test and Exception Test	As the site is allocated within the Adopted LDP, the Sequential Test is considered to have passed. An Exception Test is not required for the site.
	Sequential Approach	The Sequential Approach has been applied by locating buildings outside the 1 in 100 + 35% climate change flood extent. During detailed design, apply Sequential Approach to locate office parking to areas of lower risk of flooding.
Mitigation measures	Design Flood Event	1 in 100 year +25% climate event.
	Climate change	25% to 35% allowance
	Finished Floor Levels	Finished Floor Levels are proposed to be set at a minimum of the 1 in 100 year + 35% climate change plus 300mm freeboard.
	Safe access and egress	Safe access and egress to be provided from all buildings via Lakeview Drive at or above the 1in 100 year +35% climate change level.
	Floodplain compensation	No ground level raising within the Functional Floodplain. Ground raising permitted between the 1 in 20 year flood extent and the 1 in 100 year + 25% climate change flood extent if flood compensation provided on a level for level and volume for volume basis on site.
	Construction Phase	Contractor will need to sign up to EA's flood warning service and to locate stockpiles outside the 1 in 1000 year flood extent.
	Surface water drainage strategy	Primary infrastructure constructed on the site, sized for the Proposed Development. Discharge rates limited to greenfield rates. SuDS techniques to be implemented. Exceedance routes will need to be considered to route flood water away from the threshold of buildings.
	Residual Risk	A flood evacuation and management plan should be considered during detailed design to manage the residual risk of surface water and fluvial flooding on the site posed to both people and vehicles.

# 2 Introduction

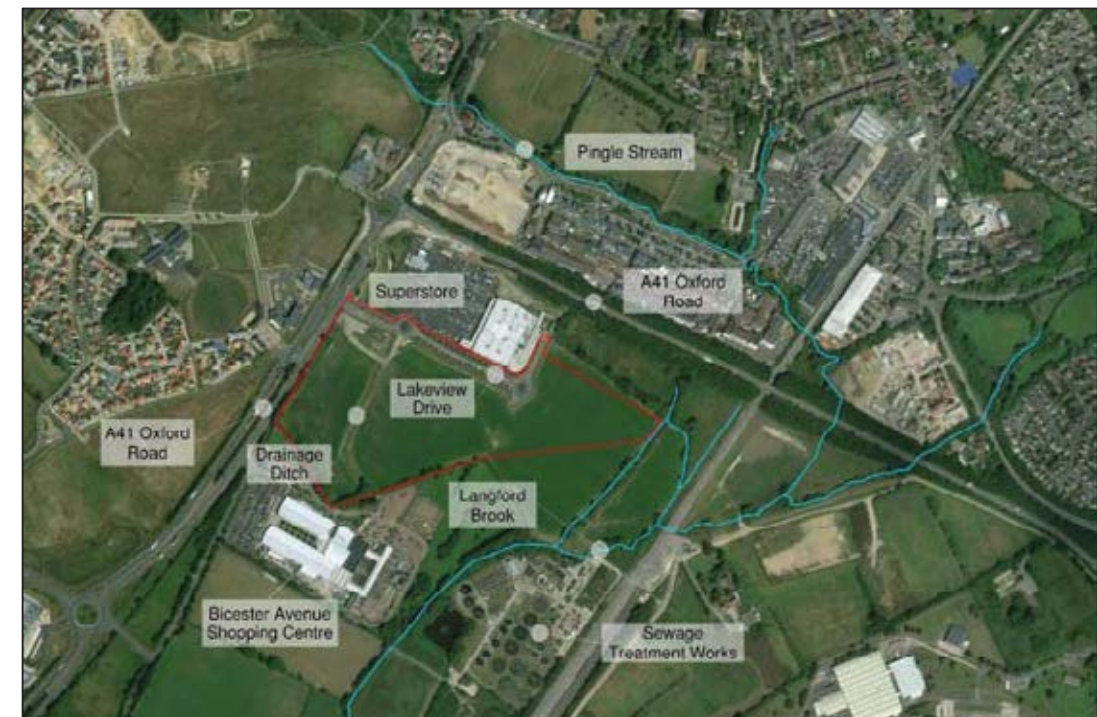
## 2.1 Background

This site specific Flood Risk Assessment (FRA) has been prepared by BuroHappold Engineering on behalf of Scenic Land Developments Limited as part of an Outline Planning Application for the Bicester Office Park development, hereafter referred to as the 'Proposed Development'. The application is in outline with all matters reserved except for access. This assessment has been carried out in accordance with the National Planning Policy Framework (NPPF).

## 2.2 Site Description

The Proposed Development site is located to the south of Bicester in the Cherwell District of Oxfordshire, Ordnance Survey grid reference (NGR) SP 579 215. The site is bounded by the A41 Oxford Road to the west, the new Tesco foodstore to the north, to the east by open fields and to the south by Bicester Avenue shopping centre. A sewage treatment works is located to the south east of the site. There is an agricultural field drainage ditch that runs north/south across the site towards the south eastern boundary. The site area is approximately 13.1ha and is currently agricultural land. **Figure 2-1** shows the location of the Proposed Development.

The Langford Brook is located approximately 180m to the south east of the Proposed Development and flows in a south westerly direction to the north of the sewage treatment works before cutting beneath the railway line. A land drain connecting into the Langford Brook is adjacent to the north east corner of the site.



**Figure 2-1: Site Location Plan with indicative red line boundary (Site Aerial received from Hyland Edgar Driver on 26/5/2017)**

The site levels fall from Lakeview Drive in the north, and slope down towards the south and south east boundary of the site towards the Langford Brook. Topographical survey data from 2017 (Greenhatch Group), 2011 LiDAR (1m resolution) Digital Terrain Model<sup>1</sup> and As-built survey information from the superstore development (Brehehy Civil engineering, 2015) are available for the site. These surveys indicate that land levels along Lakeview Road in the north of the site are typically between 66.5m AOD, increasing in the west to 67.5m AOD. Along the south of Lakeview Road, there is a 0.8m to 1.5m high bund and an area of material storage north of the drainage ditch. Land slopes downwards from the road to the south boundary where land levels vary from 66.0m AOD to 65.0m AOD and to south east where levels are typically between 64.6m AOD and 64.9m AOD. Refer to **Appendix A** for site survey information.

### 2.3 Proposed Development

The Proposed Development comprises between 55,000 and 60,000m<sup>2</sup> (gross external area) office use (B1(a) and B1(b)), parking for approximately 2,000 cars, associated highway, infrastructure and earthworks. The office park will be made up of differently sized buildings which will vary in height between two and four storeys and located with associated landscaping. **Figure 2-2** shows the Proposed Development parameters plan for the site and drawings are provided in **Appendix B**.

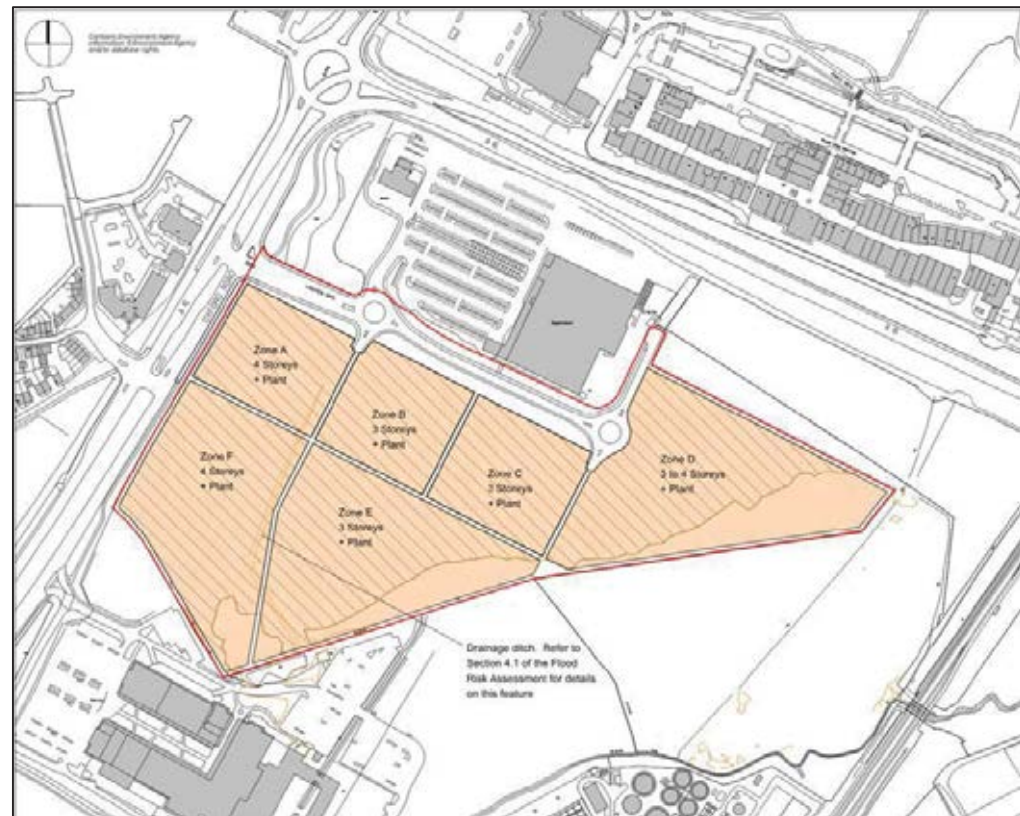


Figure 2-2: Proposed Development Parameters Plan (Drawing 1105\_P\_005 rev E, Bennetts Associates 30/11/17)

<sup>1</sup> Downloaded from <http://environment.data.gov.uk>. Contains Public Sector Information licenced under the Open Government Licence v3.0.

## 3 Planning Context

### 3.1 Overview

This FRA has been prepared in accordance with policies and guidance applicable to the Proposed Development outlined within the following publications:

- National Planning Policy Framework (March 2012)
- National Planning Policy Framework Planning Practice Guidance (March 2014)
- Flood Risk Assessments: climate change allowances (February 2016, updated February 2017)
- Thames Area Climate Change Allowances. Guidance for their use in flood risk assessments (January 2017)
- Cherwell and West Oxfordshire Level 1 Strategic Flood Risk Assessment (April 2009)
- Cherwell District Council Level 2 SFRA (March 2012)
- Oxfordshire County Council Preliminary Flood Risk Assessment Preliminary Assessment Report (June 2011)
- The Cherwell Local Plan 2011-2031. Part 1 Adopted 20 July 2015 (July 2015)

### 3.2 National Planning Policy Framework

#### 3.2.1 Flood Zone Assessment

The National Planning Policy Framework<sup>2</sup> (NPPF) aims to avoid inappropriate development in areas at highest risk of flooding. The Planning Practice Guidance to the NPPF<sup>3</sup> contains a series of tables that help identify the risk of flooding to a development.

- Table 1 defines four Flood Zones based on the annual probability of river or sea flooding;
- Table 2 identifies specific land use types for each of the five flood risk vulnerability classifications (Essential Infrastructure, Highly Vulnerable, Less Vulnerable and Water Compatible Uses). For example, office buildings are classified as *less vulnerable*; and
- Table 3 identifies where development is appropriate for each flood risk vulnerability classification and whether the Exception Test is required.

The Flood Zones defined in the NPPF are as follows:

<b>Flood Zone 1</b>	Low probability  < 1 in 1,000 annual probability of river or sea flooding in any year (<0.1%).
<b>Flood Zone 2</b>	Medium probability  Between 1 in 100 and 1 in 1,000 annual probability of river flooding in any year (1% - 0.1%), or between 1 in 200 and 1 in 1,000 annual probability of sea flooding in any year (0.5% - 0.1%).
<b>Flood Zone 3a</b>	High probability

<sup>2</sup> Department for Communities and Local Government (2012). *National Planning Policy Framework*.

<sup>3</sup> Department for Communities and Local Government (2014). *National Planning Policy Framework Planning Practice Guidance*. [online] Available at: <https://www.gov.uk/guidance/flood-risk-and-coastal-change>. [Accessed 22 March 2017].

> 1 in 100 annual probability of river flooding in any year (>1%), or

> 1 in 200 annual probability of sea flooding in any year (>0.5%).

#### **Flood Zone 3b** Functional floodplain

> 1 in 20 annual probability of flooding in any year (5%).

The Proposed Development consists of office buildings which are classified as 'less vulnerable' in accordance with the NPPF Planning Practice Guidance and are considered appropriate for Flood Zone 1, 2 and 3a. The Environment Agency has confirmed that as the site is allocated in the Cherwell District Council Local Plan under Policy Bicester 4, car parking is considered acceptable within Flood Zone 3b. This is provided there is no ground raising within Flood Zone 3b.

#### **3.2.2 Sequential and Exception Test**

The NPPF states that *'inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere'*. The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. If this cannot be achieved, the Exception Test is required if indicated by the conditions specified in NPPF Table 3.

The Cherwell Local Development Plan (LDP) 2011-2031 Part 1 was adopted in July 2015 and re-adopted in December 2016. As the site is allocated under Policy Bicester 4 for Employment, the Sequential Test for the development is considered to be passed and justification is provided in Cherwell District Local Plan Sequential Test and Exception Test (Flooding) Document<sup>4</sup>. The Exception Test is not required for the Proposed Development as 'More Vulnerable' uses are not proposed on the site.

In accordance with NPPF and Policy Bicester 4 in the LDP, a Sequential Approach should be followed. The LDP policy requires *'where possible, buildings should be located away from areas at high risk of flooding but where it is necessary development should be made safe without measures increasing flood risk elsewhere'*<sup>5</sup>. For the Proposed Development, all the office buildings are to be located outside the 1 in 100 year + 35% climate change flood extent.

Policy Bicester 4 requires a site specific Flood Risk Assessment (FRA) to be undertaken for the Proposed Development. The Policy Bicester 4 also requires the following:

- Consideration of all sources of flooding for the site;
- 'Flood mitigation of flood risk in compliance with Policy ESD 6'<sup>5</sup>;
- The Proposed Development should be 'safe and remain operational (where necessary)'<sup>5</sup>;
- Consideration of the Strategic Flood Risk Assessment for the Proposed Development;
- Incorporation of Sustainable Drainage Systems (SUDs) for managing surface water on site which seek to 'reduce flood risk, reduce pollution and provide landscape and wildlife benefits'<sup>5</sup>;
- Reduction of surface water run off to greenfield discharge rates for the Proposed Development;
- Development is not within 8m of the watercourse banks.

The following site specific FRA has been prepared to meet the Policy Bicester 4 requirements.

<sup>4</sup> Cherwell District Council. Sequential Test and Exception Test (Flooding) Strategic Sites (August 2012, updated October 2013).

<sup>5</sup> Cherwell District Council. The Cherwell Local Plan 2011- 2031. Part 1 Adopted 20 July 2015. Policy Bicester 4: Bicester Business Park. (July 2015)

### **3.3 Consultation**

#### **3.3.1 Environment Agency**

The EA has provided BuroHappold with the following information<sup>6</sup> which was used to inform the assessment of flood risk to the Proposed Development:

- Flood map for planning;
- Modelled floodplain flood levels;
- Historical Flood data information;
- Flood defence information;
- Hazard Flood map;
- Bicester Flood Risk Mapping Study, Final Modelling Report (December 2009);
- Model Output data;
- Langford Brook (Bicester) & Pingle-Back-Bure 2010 ISIS-TUFLOW Model.

In addition to this, the Environment Agency has provided pre-application advice on their requirements for the Flood Risk Assessment including the approach to defining the flood extents, finished floor levels, development in Functional Floodplain and approach to floodplain compensation. In summary, the EA confirmed the following:

- The 1 in 20 year flood extent is classified as Functional Floodplain (Flood Zone 3b);
- The approach taken by BHE to define the flood extents for the 1 in 20, 1 in 100 and 1 in 1000 year using the flood levels against the topographic survey and LiDAR data was acceptable;
- Hydraulic modelling is required to define the flood levels for the 1 in 100 year + 25% and + 35% climate change scenarios required by the new 2016 climate change guidance<sup>7</sup>. Once defined, the same approach using the topographic survey information and where unavailable, LiDAR was acceptable to define the flood extents;
- The Design Flood Event (DFE) for the Proposed Development is the 1 in 100 year + 25% climate change allowance;
- A Sequential Approach should be taken to locating development on site. The EA advised that buildings should be located outside the 1 in 100 year + 35% climate change extent;
- Car parking within Flood Zone 3b is acceptable provided there is no ground raising;
- Minimum finished floor levels should be set at or above the DFE flood level plus 300mm freeboard. This would be for the 1 in 100 year + 25% climate change plus freeboard. However, the EA has requested that the finished floor levels are set at 1 in 100 year + 35% level plus 300mm freeboard.
- Ground raising outside the Functional Floodplain is not advised but would be acceptable provided floodplain compensation is provided up to the 1 in 100 year + 25% flood extent. The need for flood compensation would need to be considered through detailed design and could be dealt with through a planning condition.

A full copy of the data received and information provided by the EA is included in **Appendix C**.

<sup>6</sup> Environment Agency Products 4, 5, 6 and 7

<sup>7</sup> Flood Risk Assessments: climate change allowances (February 2016, updated February 2017)

## 4 Appraisal and Management of Flood Risk

### 4.1 Fluvial Flooding

Fluvial flooding occurs when sustained or intense rainfall events increase the flow in rivers causing water level to rise above the level of the banks and into surrounding areas.

#### 4.1.1 Baseline

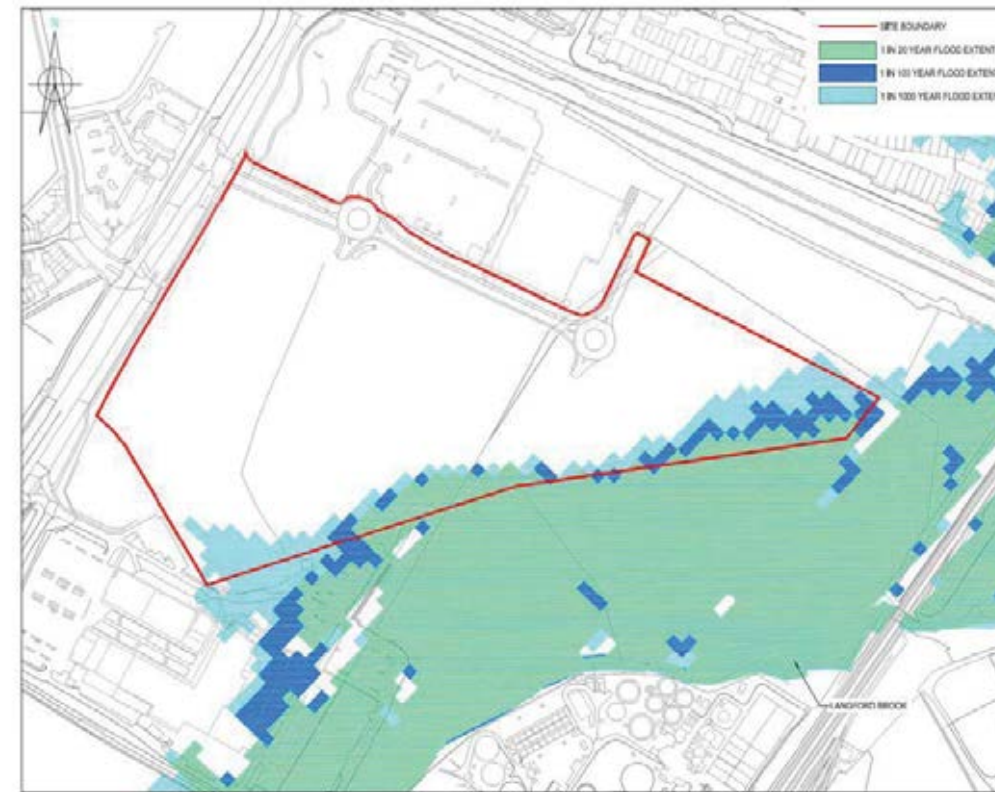
##### 4.1.1.1 Flood Zone Assessment

The Flood Zone map produced by the EA shows that the majority of the site lies within Flood Zone 1 which is considered at low risk of flooding. However, land along the south east boundary lies within Flood Zone 2 and 3a considered medium and high risk of flooding respectively due to the Langford Brook approximately 180m from the site. There are also localised areas of Flood Zone 3b, classified as functional floodplain which has more than a 1 in 20 annual probability of flooding in any one year.

The flood extents are defined as the following:

- Flood Zone 1** Low probability  
< 1 in 1,000 annual probability of river or sea flooding in any year (<0.1%).
- Flood Zone 2** Medium probability  
Between 1 in 100 and 1 in 1,000 annual probability of river flooding in any year (1% - 0.1%), or  
between 1 in 200 and 1 in 1,000 annual probability of sea flooding in any year (0.5% - 0.1%).
- Flood Zone 3a** High probability  
> 1 in 100 annual probability of river flooding in any year (>1%), or  
> 1 in 200 annual probability of sea flooding in any year (>0.5%).
- Flood Zone 3b** Functional floodplain  
> 1 in 20 annual probability of flooding in any year (5%).

BuroHappold Engineering has overlaid the 1 in 20, 1 in 100 and 1 in 1000 year flood extents provided as part of the Product 6 information with the red line boundary as shown in **Figure 4-1**. This indicates that the site also lies within the 1 in 20 year flood extent. The EA has confirmed that the 1 in 20 year extent is Functional Flood plain i.e. Flood Zone 3b. The EA has no records of historical flooding on the site.



**Figure 4-1 Flood Zone Extents overlaid with the red line boundary provided as part of the product 6 information from the Environment Agency on the 23<sup>rd</sup> June 2017. (Contains Environment Agency Information © Environment Agency and/or database right).**

BHE has further defined the flood extents for the 1 in 20, 1 in 100 and 1 in 1000 year flood extents by using a combination of topographic survey information (2017) and LiDAR DTM data (2011, 1m resolution) for the site. The flood extents have been derived by the following means:

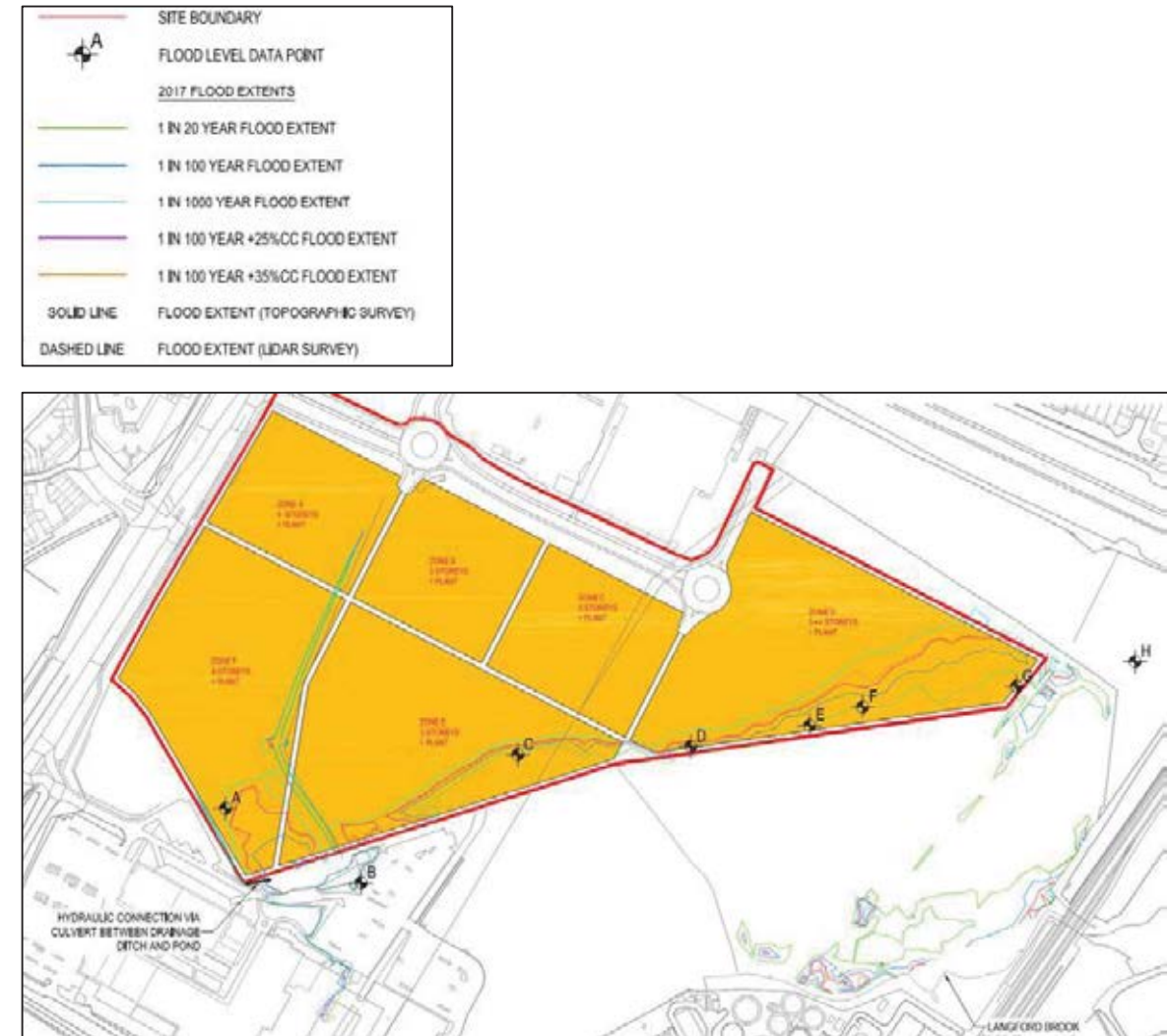
- Flood model level information has been extracted from the Langford Brook (Bicester) & Pingle-Back- Bure 2010 ISIS-TUFLOW Model for Points A to H in the floodplain. It has been assumed that the levels within the floodplain are the same as within the corresponding point in the river channel.
- Using 3D modelling software, a flood level surface for each return period event has been created by interpolating between the flood level points defined in the floodplain and the channel.
- The survey information (topographic survey or LiDAR) has been used to create a ground level surface by interpolating between the LiDAR contours/ topographic survey points.
- 3D modelling software has then been used to determine where the flood level intersects the ground level surface. The model has defined a contour for each of the flood level extents which is provided on the attached drawings.
- As topographic survey information does not cover a section south east of the site, LiDAR DTM Data (2011, 1m resolution) has been used. The flood extents have been defined by the topographic survey but where this was not available, the flood extent has been combined with the flood extent derived from LiDAR.

- Since there are differences between the levels measured during the topographic survey and the LiDAR survey, due to the respective tolerances, there were some discontinuities between the flood extent lines at the boundary between the topographic survey and LiDAR surfaces. At these locations the flood extent line has been interpolated between the flood extents on either side of the discontinuity at the point where there is the least difference between the two surveys. A drawing showing the flood extent lines is shown in **Appendix D**, with the locations where the flood extent line defined by the LiDAR and topographic survey clearly marked.

The revised flood extents are provided in **Figure 4-2** and provided in **Appendix D**. These have been used to inform the assessment of fluvial flood risk on the site and mitigation measures.

The drainage ditch that runs north/ south across the site towards the south eastern boundary functions as an agricultural field drainage feature and was originally provided on the boundary of two different land ownerships. The adjoining land has been purchased by the applicant and the ownerships amalgamated into a single agricultural operation. The owners are intending to fill in this ditch imminently and Oxfordshire County Council have confirmed that an Ordinary Watercourse Consent is not required. As it may provide a limited field drainage function, a perforated drainage pipe will be installed as a precautionary measure. It is considered that the ditch does not provide a wider drainage function.

For the purposes of this Flood Risk Assessment, the drainage ditch has been assumed to have been filled in.



**Figure 4-2– Revised Flood Zone Extents overlaid with the red line boundary (Contains Environment Agency Information © Environment Agency and/or database right). For full copyright details, refer to the drawing in Appendix D.**

**4.1.1.2 Flood Levels**

The EA has provided BHE with the ISIS-TUFLOW Langford Brook (Bicester) & Pingle-Back-Bure 2010 ISIS-TUFLOW Model for the site. BHE has extracted the flood level results for points along the extent of the south eastern boundary of the site. These are provided for Points A to H in **Table 4-1**.

**Table 4-1: Flood Levels extracted from the ISIS-TUFLOW within the floodplain (Contains Environment Agency Information © Environment Agency and/or database right).**

Point	X Co-ordinate	Y Co-ordinate	Fluvial Flood Levels (mAOD)		
			1 in 20 year	1 in 100 year	1 in 1000 year
A	457650.7	221442.2	64.63*	64.70*	64.81
B	457751.0	221387.3	64.63	64.70	64.81
C	457866.9	221481.9	64.67	64.74	64.88
D	457994.7	221488.1	64.81	64.89	65.04
E	458082.6	221503.4	64.83	64.93	65.13
F	458121.7	221517.1	64.84	64.95	65.16
G	458235.5	221532.3	64.84	64.96	65.19
H	458323.1	221550.5	65.02	65.11	65.27

\* Flood levels based on point B due to flood water not reaching the point within the hydraulic model

#### 4.1.1.3 Climate Change Allowance

Allowances for the predicted effects of climate change should be taken into account when preparing site-specific flood risk assessments. The guidance<sup>8</sup> published by the Environment Agency (EA) in February 2016 to support the NPPF contains sensitivity ranges that are recommended to be applied to peak rainfall intensities, peak river flows, sea level rise, offshore wind speeds and extreme wave heights. The recommended allowances for increases in peak river flow rate in the Thames river basin district are given in **Table 4-2**.

**Table 4-2: Climate change allowances for peak river flow in the Thames river basin district (Contains Environment Agency information © Environment Agency and database right)**

Allowance category	Total potential change anticipated for 2015 to 2039	Total potential change anticipated for 2040 to 2069	Total potential change anticipated for 2070 to 2115
Upper end	25%	35%	70%
Higher central	15%	25%	35%
Central	10%	15%	25%

The EA guidance for the use of peak river flow allowances notes that the allowance category to be used depends on the land use vulnerability and the Flood Zone in which the site is located. Since the Proposed Development includes *less vulnerable* land uses, both the central and higher central allowances should be used. Considering a 60 year design life for the Proposed Development, the central peak river flow climate change allowance is 25% and the upper end allowance is 35%.

As the Proposed Development is classified as 'Large-Major' development, a vulnerability classification of 'Less vulnerable' and in Flood Zone 3, the EA has requested that hydraulic modelling is undertaken to determine the flood levels for 25% and 35% as these have not been modelled by the Environment Agency. This is in accordance with the Thames Area Climate Change guidance.

<sup>8</sup> Environment Agency, (2016). *Flood risk assessments: climate change allowances*. [online] Available at: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances> [Accessed 27th July 2017].

BHE has undertaken hydraulic modelling for these events by increasing the flow rates for the 1 in 100 year by 25% and 35% respectively. A summary of the flood level results are provided in **Table 4-3**. For further information, refer to the hydraulic modelling report provided in **Appendix E**.

**Table 4-3: Flood Levels extracted from the ISIS-TUFLOW within the floodplain (Contains Environment Agency information © Environment Agency and database right)**

Point	X Co-ordinate	Y Co-ordinate	Fluvial Flood Levels (mAOD)	
			1 in 100 year + 25% climate change	1 in 100 year + 35% climate change
A	457650.7	221442.2	64.74*	64.81*
B	457751.0	221387.3	64.74	64.81
C	457866.9	221481.9	64.79	64.88
D	457994.7	221488.1	64.94	65.04
E	458082.6	221503.4	65.00	65.13
F	458121.7	221517.1	65.02	65.16
G	458235.5	221532.3	65.04	65.19
H	458323.1	221550.5	65.16	65.27

\* Flood levels based on point B due to flood water not reaching the point within the hydraulic model

BHE has undertaken the same process as defined in **Section 4.1.1.1** to establish the flood extent using a combination of the 2017 topographic survey and 2011 LiDAR DTM Data. These are provided in **Figure 4-2**.

#### 4.1.1.4 Fluvial Flood Hazard

The fluvial flood hazard map for the 1 in 100 year + 35% climate change event has been provided in **Figure 4-3**. The map shows the hazard rating across the site (defined in **Table 4-4**). This is based on the following calculation which takes into consideration velocity (v) and depth of the floodwater (d) and debris factor (DF):

$$HR = d * (v+0.5) + DF$$

**Table 4-4 Flood Hazard Classifications<sup>9</sup>**

Flood Hazard	Hazard to People Classification	
Less than 0.75	Very Low Hazard	Caution
0.75 to 1.25	Danger for some	Includes children, the elderly and the infirm
1.25 to 2.0	Danger for most	Includes the general public
More than 2.0	Danger for all	Includes the emergency services

**Figure 4-3** shows that along the south eastern boundary, there are areas of that are defined at 'Very low hazard', 'Danger for some' and some small localised spots where it is classified as 'Danger for most'.

<sup>9</sup> HR Wallingford and Environment Agency (May 2008) Supplementary note of flood hazard ratings and thresholds for development planning and control purpose – Clarification of the Table 113.1 of FD2320/TR2 and Figure 3.2 of FD2321/TR1

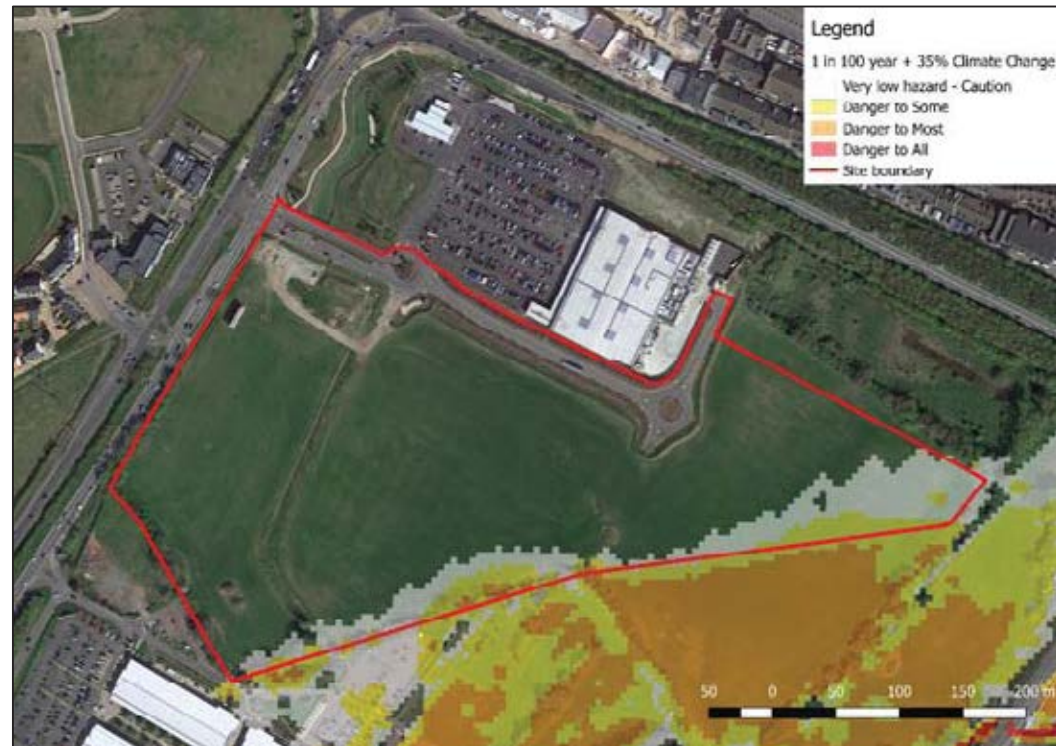


Figure 4-3 Fluvial flooding hazard map for 1 in 100 year storm event + 35% climate change (Contains Environment Agency Information © Environment Agency and/or database right) Imagery © Google 2017, Map data © Google 2017)

**4.1.2 Proposed Development**

For the Proposed Development, ground levels within the Functional Floodplain (i.e. within the 1 in 20 year flood extent) are not to be raised in accordance with NPPF guidance and the EA's pre-application advice. At grade car parking within this zone is considered acceptable by the Environment Agency provided there is no raising of ground levels.

A sequential approach should be taken to locating development on site to areas of lower risk of flooding. The office buildings are to be located outside of the 1 in 100 + 35% climate change and set with a minimum floor level. Car parking should be located, where possible, towards areas of lower risk of flooding (i.e. away from the south eastern boundary).

Finished floor levels for the office buildings are to be set at the 1 in 100 year + 35% climate change flood level with an additional 300mm freeboard.

During detailed design of the site, if ground raising is required between the 1 in 20 year flood extent and the 1 in 100 year + 25% climate change flood extent, then flood compensation will be required to be provided. This will need to be provided on a level for level and volume for volume basis on site in accordance with the Level 2 SFRA Table 5-3 guidance for the site.

**4.1.2.1 Construction Phase**

During the construction phase, the Contractor will need to sign up to the EA's flood warning service which covers the site and produces a construction flood and evacuation plan for managing flood risk on site during the construction phase.

During construction, stockpiles of material should not be stored within the Functional Floodplain as land raising is not permitted. It is recommended that stockpiles are located outside the 1 in 1000 year flood extent.

**4.2 Flooding from Surface Water**

Surface water flooding occurs when intense rainfall is unable to naturally soak into the ground due to impermeable ground covering such as concrete or tarmac, or low permeability ground conditions preventing infiltration. This excess surface water can flow through built-up areas and open space and pond in lower-lying areas causing localised flooding.

**4.2.1 Baseline**

The Environment Agency surface water map shows that the majority of the site is at very low risk of surface water flooding (i.e. less than 1 in 1,000 annual probability of surface water flooding in any year). **Figure 4-4** has been reproduced using the EA flood extent data. The map shows that there is an area at high risk of flooding (less than a 1 in 30 annual probability of surface water flooding) from the north to the south of the site. This corresponds to the location of the drainage ditch. The EA's model results typically show between 300 to 600mm of flooding with localised spots between 600 to 900mm for the 1 in 100 annual exceedance probability event as shown in **Figure 4-5**.

There are areas of low to medium risk of surface water flooding (between a 1 in 30 and 1 in 100 and between a 1 in 100 and 1 in 1000 annual probability respectively) adjacent to drainage ditch, along the eastern boundary and south eastern corner of the site. The predicted depths from the EA's modelling are less than 300mm for the 1 in 100 annual probability event.

The area along the northern boundary of the site shows areas of low, medium and high surface flood risk. This area has been re-configured as part of the 2015 superstore works which may not be reflected in the modelling. Depths for the 1 in 100 annual probability event are predicted as below 300mm.



Figure 4-4 Environment Agency's surface water flood extents map with indicative red line boundary. Accessed 16/8/17 (© Environment Agency copyright and/or database right 2015. All rights reserved. Some features of this map are based on digital spatial data from the Centre for Ecology & Hydrology, © NERC (CEH). Soils Data © Cranfield University (NSRI) and for the Controller of HMSO 2013. Imagery © Google 2017, Map data © Google 2017)



Figure 4-5 EA's surface water flood depth map for 1 in 100 annual probability event with indicative red line boundary. Accessed 16/8/17 (© Environment Agency copyright and/or database right 2015. All rights reserved. Some features of this map are based on digital spatial data from the Centre for Ecology & Hydrology, © NERC (CEH) and © Lead Local Flood Authorities. Soils Data © Cranfield University (NSRI) and for the Controller of HMSO 2013. Imagery © Google 2017, Map data © Google 2017)

Figure 4-6 shows that for the 1 in 100 annual probability event, the flooding in the locality of the drainage ditch has areas which pose a 'Danger for most', 'Danger for some' and areas 'Very Low Hazard – Caution'. There is also a 'Very Low Hazard – Caution' areas along the south eastern and northern boundary with localised spots of 'Danger for some' on Lakeview Drive.



Figure 4-6 Environment Agency's surface water flood hazard map for the 1 in 100 annual probability event with indicative red line boundary. Accessed 16/8/17 (© Environment Agency copyright and/or database right 2015. All rights reserved. Some features of this map are based on digital spatial data from the Centre for Ecology & Hydrology, © NERC (CEH). Soils Data © Cranfield University (NSRI) and for the Controller of HMSO 2013. Imagery © Google 2017, Map data © Google 2017)

The 2011 Preliminary Flood Risk Assessment (PFRA) Map 1 and Map 2 show no recorded surface water flood events during July 2007 and other past events. The Level 2 SFRA also reports that the EA and Cherwell District Council have no records of surface water flooding on site.

In January 2014, following a period of major winter storms which brought widespread heavy and extended rainfall to the UK, BHE undertook a site visit to Bicester. BHE observed localised surface water ponding at the then recently excavated superstore construction site to the north of the development site where the underlying soil was identified as clay with poor permeability, as well as localised ponding at lower ground level areas in the vicinity of the manhole structures and overhead power line posts near the eastern boundary. BHE estimated that the rainfall over the 16 day period from 23<sup>rd</sup> December 2013 to 7<sup>th</sup> January 2014 was equivalent to a 1 in 17 year event.



**4.2.2 Proposed Development**

The primary surface water drainage infrastructure to serve the Proposed Development has already been constructed as part of the primary infrastructure contract for the site. The drainage was designed to provide capacity to serve the development proposals covered by the 2007 outline planning application.

The surface water infrastructure was installed along Lakeview Drive with spurs left to facilitate drainage connections from the masterplan. A 600mm diameter surface water pipe crosses the Proposed Development site and outfalls into the drainage ditch upstream of the confluence with the Langford Brook.

The primary surface water sewer was designed with a capacity to serve the proposed 60,000m<sup>2</sup> B1 development. In accordance with the previously agreed drainage strategy, surface water runoff from the developed site will be limited to current 'greenfield' runoff rates and onsite storage will be required. The greenfield runoff rate will be estimated using the HR Wallingford *uksuds* tool. The sewer capacity of the constructed surface water drainage has been designed on this basis.

Attenuation measures for the developed site will be designed to accommodate the increased rainfall intensities in accordance with the climate change recommendations issued by the Environment Agency in February 2016.

The drainage system to serve the development site will incorporate the recommendations of Sustainable Drainage Systems (SuDS) good practice. The current Good Practice Guidance is contained in CIRIA Report C753 issued in 2015. This will be used to design the onsite drainage network unless superseded in the future.

In accordance with Policy Bicester 4, the site is not permitted to flood from surface water up to and including the 1 in 30 year event. Surface water flooding above this event up to a 1 in 100 year event with allowance for climate change is permitted provided it is safely contained within the site. During detailed design, exceedance routes will need to be considered to route flood water away from the threshold of buildings.

Refer to **Appendix F** for the surface water drainage strategy.

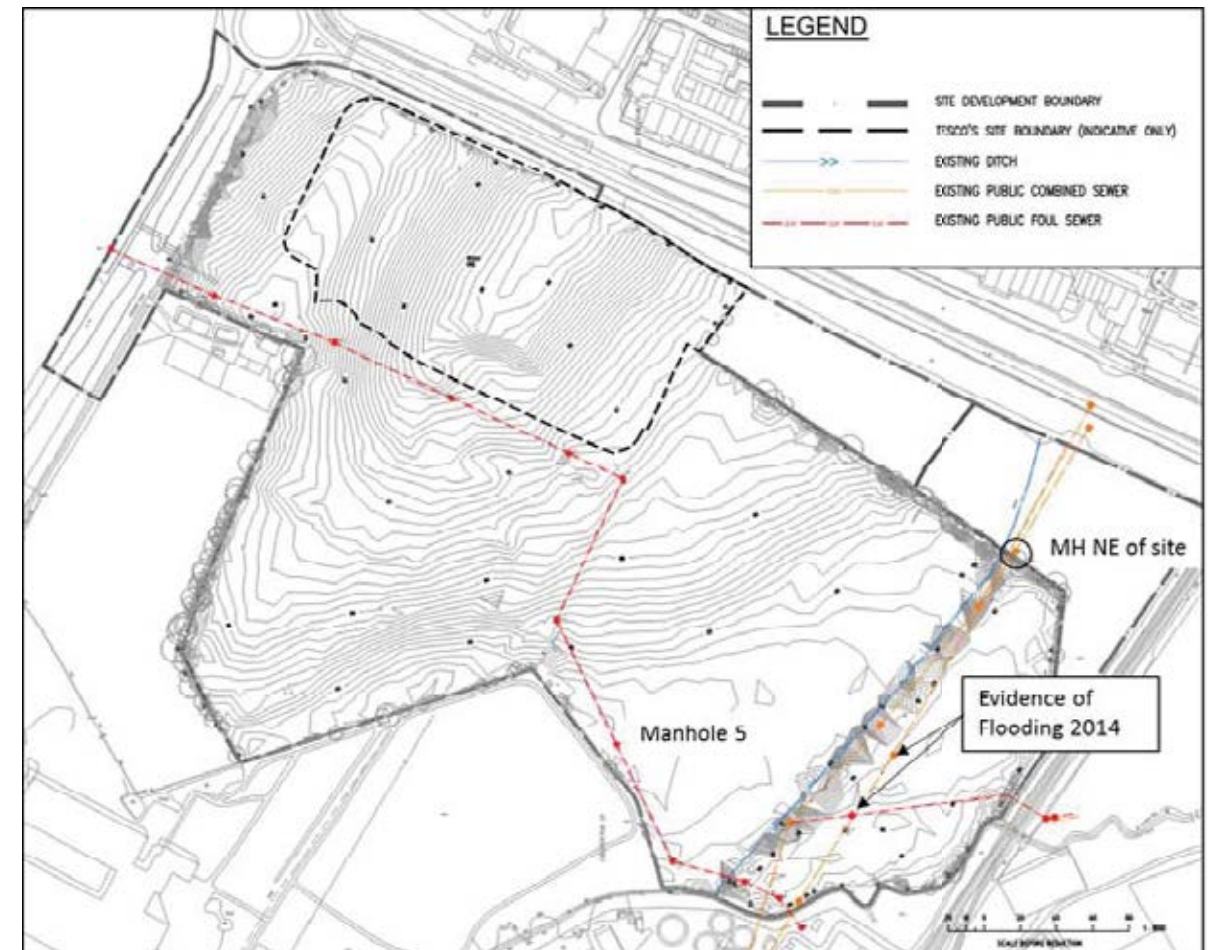
**4.3 Flooding from Sewers**

Flooding from sewers is typically associated with blockage, failure or overloading of the sewer network.

**4.3.1 Baseline Flood Risk**

The Level 2 SFRA Thames Water DG5 database map showed no recorded sewer flooding incidents within or in the vicinity of the site for the period during 2000-2010 from public foul, combined or surface water sewers. The SFRA also reported that Cherwell District were not aware of any historical incidents on the site but *'are aware of the limited sewer capacity in Bicester'*.

There are two existing combined public sewers which are to the south east of the proposed development site, parallel to the existing ditch (tributary of the Langford Brook) from Bicester village to the sewage treatment plant as shown in **Figure 4-7** taken from the 2011 BuroHappold Drainage Strategy for the Tesco Development<sup>10</sup>. The BHE site report from 2014 showed evidence of localised sewer flooding however, these were related to manholes outside of the site boundary as shown in **Figure 4-7**.



**Figure 4-7 Existing Services Information from 2011 Tesco Drainage Strategy<sup>11</sup>.**

There is also an existing 600mm diameter foul sewer which crosses the site from the A41 Oxford Road east along Lakeview Drive before turning south and then south east towards the sewage treatment works. This was installed as part of the primary infrastructure works to support the Tesco foodstore and masterplan works.

In December 2014/ January 2015, it was reported that there was localised foul flooding at Manhole 5 and the two combined sewers to the south east of the site. It is understood that this was associated with an issue downstream at the sewage treatment works rather than a capacity issue.

<sup>10</sup> Buro Happold 028858 Bicester Business Park Drainage Strategy (Pre Development Application for Tesco) Revision 02 (September 2011)

<sup>11</sup> Buro Happold 028858 Bicester Business Park Drainage Strategy (Pre Development Application for Tesco) Revision 02 (September 2011)

There are no known sewer flood incidents on site however, there have been incidents of sewer flooding in the vicinity of the site due to downstream issues. During a site visit in November 2017, there was evidence of sewer flooding from the two combined sewer manholes and the manhole north east of the site (circled on **Figure 4-7**) by the presence of detritus. From a review of the topographic survey and LiDAR data in combination with a review on site, flood water from the north east manhole would likely flow along the drainage ditch to the east away from the site. We are led to believe that the offsite foul sewer flooding at MH5 was as a result of a combination of unusual events which led to surcharging rather than a pipe capacity issue. The risk of sewer flooding to the site is therefore considered low. However, further consultation will be needed with Thames Water during detailed design.

**4.3.2 Proposed Development**

The primary foul water drainage infrastructure to serve the proposed development has already been constructed as part of the primary infrastructure contract for the site in 2011. The drainage was installed with connection points to facilitate the future connection of the masterplan site. The flow rates from the proposed development have been estimated based on the benchmarks for B1 uses. The total flow rate from the completed development will be very low in comparison with the capacity of public sewer. It is not anticipated that there will be any flow restrictions placed on the connections by Thames Water. For further information refer to **Appendix F**.

**4.4 Groundwater Flooding**

Flooding from groundwater occurs when the water table in permeable rocks such as chalk and limestone rises to enter underground spaces such as basements and cellars or reaches a sufficient level to emanate from the ground surface itself. Groundwater flooding is not necessarily directly linked to a specific rainfall event and is generally of longer duration than other causes of flooding (possibly lasting for weeks or months).

**4.4.1 Baseline**

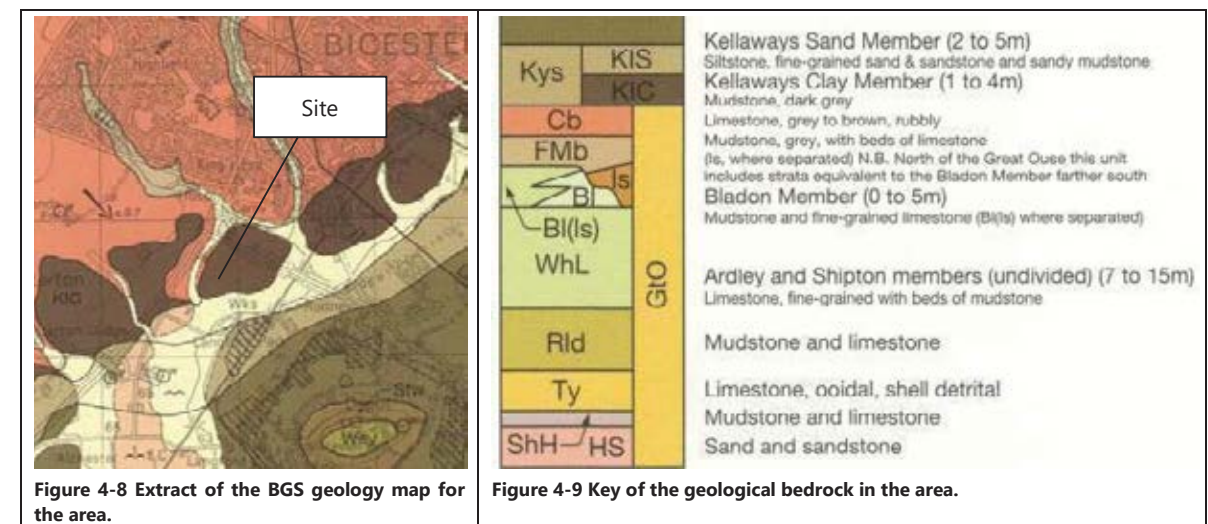
The Cherwell District Council Level 2 SFRA provides the Environment Agency’s Area Susceptibility to Groundwater Flooding map. The map shows that the eastern half of the site lies within a 1km square which has up to 25% of its area susceptible to groundwater flooding and the western site between or equal to 25% and less than 50%.

The anticipated site geology is summarised in **Table 4-5** - Summary of Anticipated Geology. This has been determined with reference to the relevant BGS map (1:50,000 series, sheet 219, Buckingham. BGS 2002); BGS borehole logs; the Groundsure report and historic site investigation data.

**Table 4-5 - Summary of Anticipated Geology**

Strata	Description	Depth to top [Thickness] (m)	Aquifer status
Alluvium	Normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present.	GL [ $<3m$ ]	Secondary
River Terrace Deposits	Sand and gravel, locally with lenses of silt, clay or peat.	GL [ $<3$ ]	Secondary
Kellaways Formation	Siltstone and mudstone.	GL – 3 [2-3]	Unproductive

Cornbrash Formation	Limestone, medium- to fine-grained, generally and characteristically intensely bioturbated and consequently poorly bedded. Generally bluish grey when fresh, but weathers to olive or yellowish brown. (Regionally between 1 to 4m thick)	$<5$ [2]	Secondary
Forest Marble Formation	Silicate-mudstone, greenish grey, variably calcareous. A variety of limestone types occur, of which grey, weathering brown and flaggy, variably sandy medium to coarsely bioclastic grainstone or less commonly, packstone predominates, especially at the base. (Regionally between 2 to 7m thick).	2.5 - $>5$ [7]	Unproductive
White Limestone Formation	A pale grey to off-white or yellowish limestone, peloidal wackestone and packstone with subordinate ooidal and shell fragmental grainstones. (Regionally between 7 and 18m thick)	9 [base not proven]	Principle



**Figure 4-8** shows that a band of alluvium and the Cornbrash Formation underlies the western part of the site at the surface. Both of these are permeable formations and are classified as Secondary Aquifers which could potentially pose a risk of groundwater flooding. However, given the permeability of the alluvium, it is likely that an increase in groundwater level in the Cornbrash formation, is likely to be dissipated by the alluvium towards the river.

The alluvium band extends to the Langford Brook and is likely to be in hydraulic connectivity with the river. Given that the site is elevated from the river by approximately 0.5m and groundwater takes longer to respond, the primary flooding mechanism for the site would be from water overtopping the banks of the Langford Brook. However, there is a low risk of groundwater flooding if groundwater rises and is unable to drain through the alluvium layer. This will be considered during the detailed ground investigation.

Ground investigation was undertaken on site in 2008 and 2014 for the proposed trunk sewer, access road and ornamental lake. Boreholes (BHs) BH2, BH 3 and Trial Pit (TP) TP1 shown in the site plan in **Appendix G** show that groundwater was either not encountered or was an artesian groundwater level at depth between 8.9, and 11.7m within the Forest Marble Formation. This formation is considered a confined aquifer with low permeability.

The Eastern part of the site is underlain immediately by the Kellaways Formation which is classified as an Unproductive Aquifer with the Forest Marble Formation at depth. Boreholes and Trial Pits (BH 4 and 5, TPs 2, 3, 6 and 7) showed groundwater levels were within the superficial deposits between 0.6m and 1.4m. Given the low permeability of the Kellaways Formation geology, it is considered that there is a low risk of groundwater flooding for the Eastern part of the site.

#### 4.4.2 Proposed Development

The Proposed Development does not include development below ground level that could be affected by high ground water levels such as basement car parking. Although the risk of groundwater flooding to the Proposed Development is considered low, further ground investigation during detailed design will be undertaken and consideration through the design of foundations to minimise the impact of groundwater.

To minimise any risk from groundwater flooding during excavation of the new development, cut levels will be limited to at least 0.5m above groundwater level. Where this is not possible, dewatering and other groundwater control measures will be required. Any such groundwater control measures will also require pollution control measures in accordance with EA guidance.

#### 4.5 Flooding from Artificial Sources

The Environment Agency map shows that there are no reservoirs located within the vicinity of the site and that the site does not lie within a breach flood flow path of a reservoir. The Preliminary Flood Risk Assessment Map 4 shows that there are no canals within the vicinity of the site and therefore the site is not at risk of canal flooding.

There is a pond to the north of the site as part of the Tesco foodstore development. This is an ornamental pond which forms part of the landscaping works and has an overflow into the drainage network. The pond is lower than the surrounding ground levels so the risk to the site resulting from breach of the pond is considered to be low.

There is also a small pond along the south east boundary of the site which forms part of the surface water drainage strategy for the garden centre. The Level 2 SFRA advises that *'LiDAR has shown that it lies at a lower elevation to the site and therefore is not considered to pose a risk of flooding from breach'<sup>12</sup>*.

The site is therefore at low risk of flooding from artificial sources.

#### 4.6 Other considerations

##### 4.6.1 Safe access and egress

A safe access and egress route for the site for vehicles and pedestrians will be via Lakeview Drive which is within Flood Zone 1 to the A41 Oxford Road to the west of the site. A safe access and egress route will need to be provided at a minimum of 1 in 100 year + 35% climate change flood level from each of the office buildings.

##### 4.6.2 Residual Risk

There is a residual flood risk to the site as there are areas which flood in a 1 in 20 year event. A sequential approach should be taken to locating development on site to areas of lower risk of flooding. Office buildings are to be located outside the 1 in 100 year +35% climate change flood extent. The finished floor levels for the buildings will be set at or above the 1 in 100 year + 35% climate change plus 300mm, which is above the flood level in the 1 in 1000 year event. However, there is a residual risk of flooding for 1 in 1000 year to the external areas of the site, potentially impacting the access to the buildings.

During detailed design, office car parking will need to be located on the site and this may need to be located in areas of the site at greater annual probability of flooding.

A flood evacuation and management plan will be required during detailed design to manage the residual risk of flooding on the site posed to both people and vehicles. The plan will consider:

- Signing up to the EA's flood warning service to provide early warning of a flood event on site;
- Closing of parts of the site predicted to be affected by flooding to prevent people entering the floodwater;
- Moving cars within car parking areas predicted to be affected by flooding to other areas on site or offsite;
- Methodology to establish how the flood levels are monitored and what/ when actions are taken on site.

<sup>12</sup> Cherwell District Council. Cherwell District Council Level 2 SFRA (March 2012)

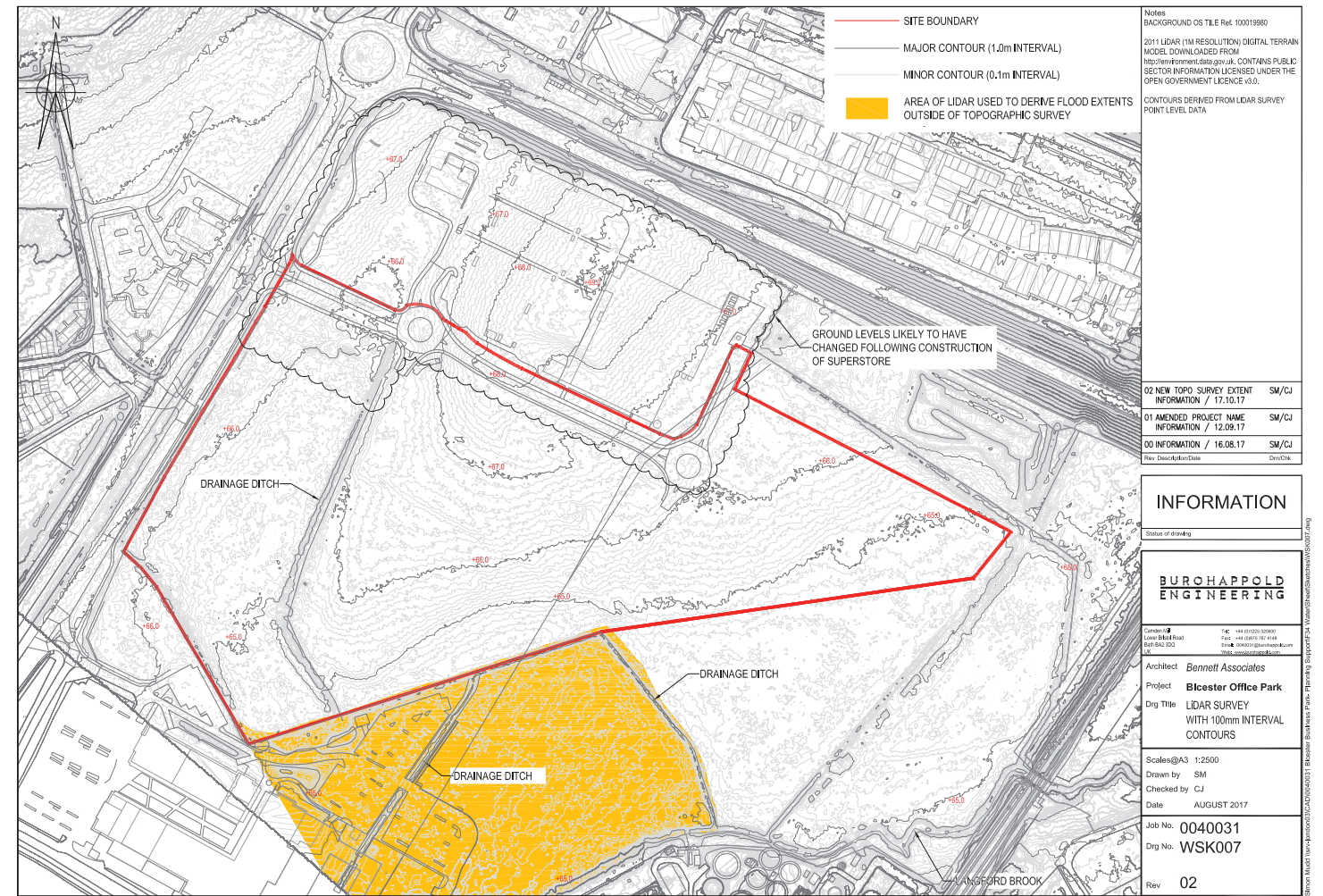
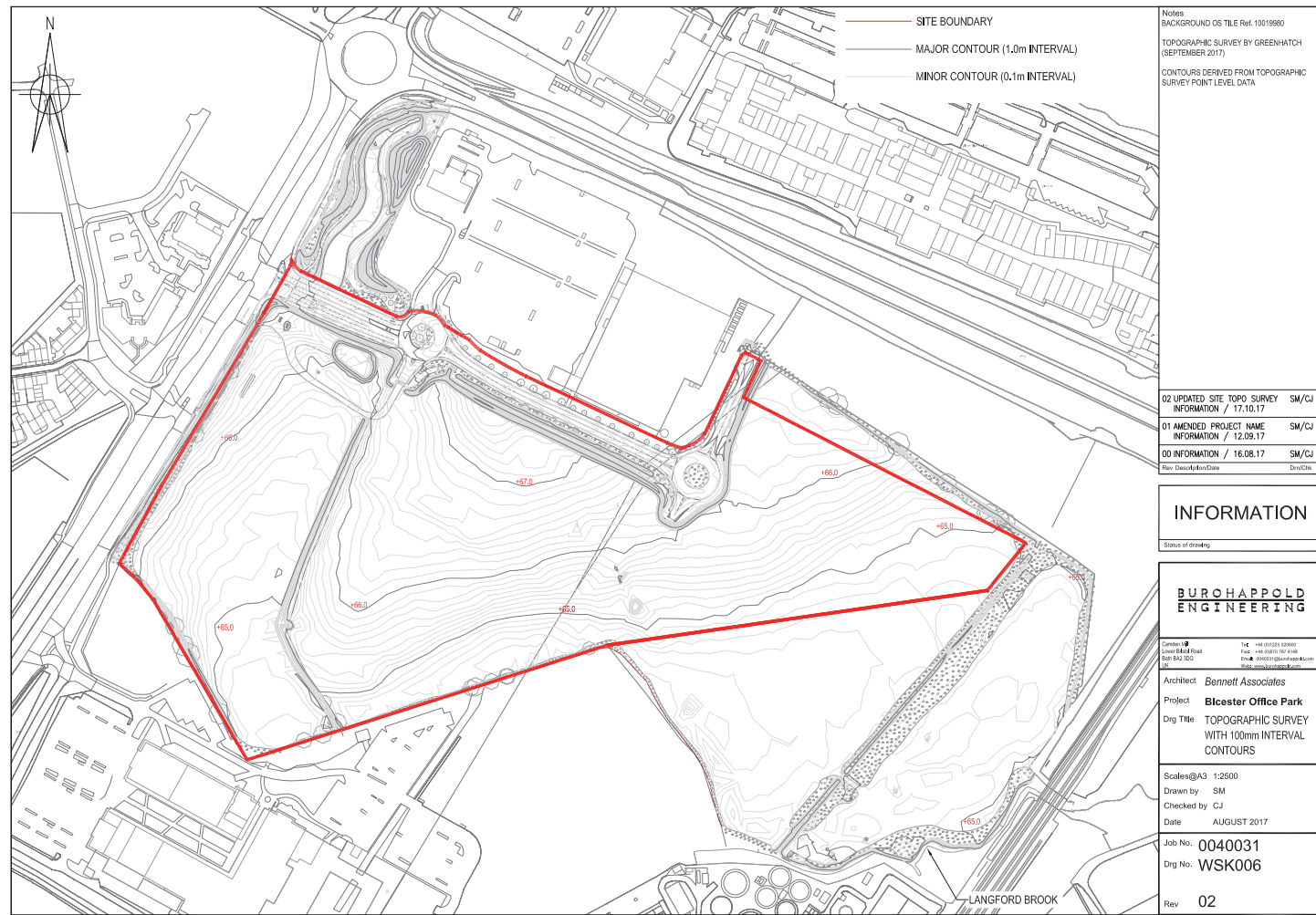
## 5 Summary and Conclusions

BHE has prepared this FRA on behalf of Scenic Land Developments Limited to support the Outline Planning Application for the Bicester Office Park site. This FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and demonstrates that with the proposed mitigation measures, the Proposed Development is considered safe up to the 1 in 100 flood event with allowance for climate change and does not increase flood risk elsewhere for the lifetime of the Proposed Development. A summary of the key findings of the Flood Risk Assessment are provided in **Table 5-1**.

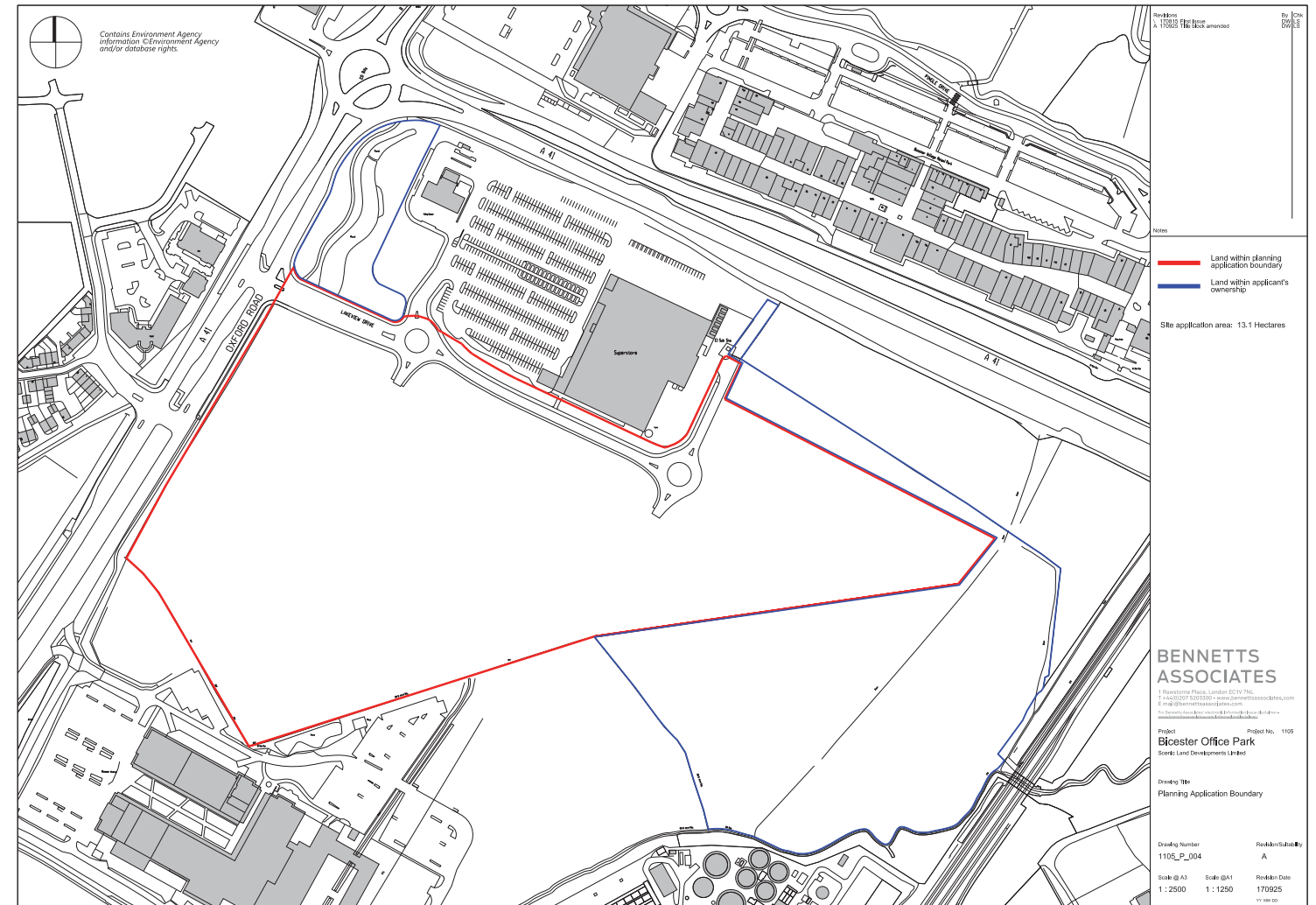
**Table 5-1 Summary of the key findings**

Subject	Element	Findings
Site Flood Risk	Fluvial	The majority of the site lies in Flood Zone 1. However, along the south eastern boundary, the site lies within 2, 3a and 3b. Areas along south eastern boundary are defined as 'Very low hazard', 'Danger for some' and small localised spots where it is classified as 'Danger for most'.
	Ground Water	Low risk of flooding. Further ground investigation recommended.
	Surface Water	The majority of the site is at very low risk of surface water flooding. There are areas of low to high risk of flooding associated with the drainage ditch crossing the site and low lying areas. Areas which pose a 'Danger for most' are associated with the drainage ditch. 'Very Low Hazard' and 'Danger for some' areas occur along south eastern and northern boundary.
	Sewers and Artificial Sources	Low risk of flooding
Planning Requirements	Vulnerability Classification	Office buildings are classified as 'less vulnerable', appropriate for Flood Zone 1, 2 and 3a. Car parking located in Flood Zone 3b is considered appropriate by the EA provided no ground raising.
	Sequential Test and Exception Test	As the site is allocated within the Adopted LDP, the Sequential Test is considered to have passed. An Exception Test is not required for the site.
	Sequential Approach	The Sequential Approach has been applied by locating buildings outside the 1 in 100 + 35% climate change flood extent. During detailed design, apply Sequential Approach to locate office parking to areas of lower risk of flooding.
Mitigation measures	Design Flood Event	1 in 100 year +25% climate event.
	Climate change	25% to 35% allowance
	Finished Floor Levels	Finished Floor Levels are proposed to be set at a minimum of the 1 in 100 year + 35% climate change plus 300mm freeboard.
	Safe access and egress	Safe access and egress to be provided from all buildings via Lakeview Drive at or above the 1in 100 year +35% climate change level.
	Floodplain compensation	No ground level raising within the Functional Floodplain. Ground raising permitted between the 1 in 20 year flood extent and the 1 in 100 year + 25% climate change flood extent if flood compensation provided on a level for level and volume for volume basis on site.
	Construction Phase	Contractor will need to sign up to EA's flood warning service and to locate stockpiles outside the 1 in 1000 year flood extent.
	Surface water drainage strategy	Primary infrastructure constructed on the site, sized for the Proposed Development. Discharge rates limited to greenfield rates. SuDS techniques to be implemented. Exceedance routes will need to be considered to route flood water away from the threshold of buildings.
	Residual Risk	A flood evacuation and management plan should be considered during detailed design to manage the residual risk of surface water and fluvial flooding on the site posed to both people and vehicles.

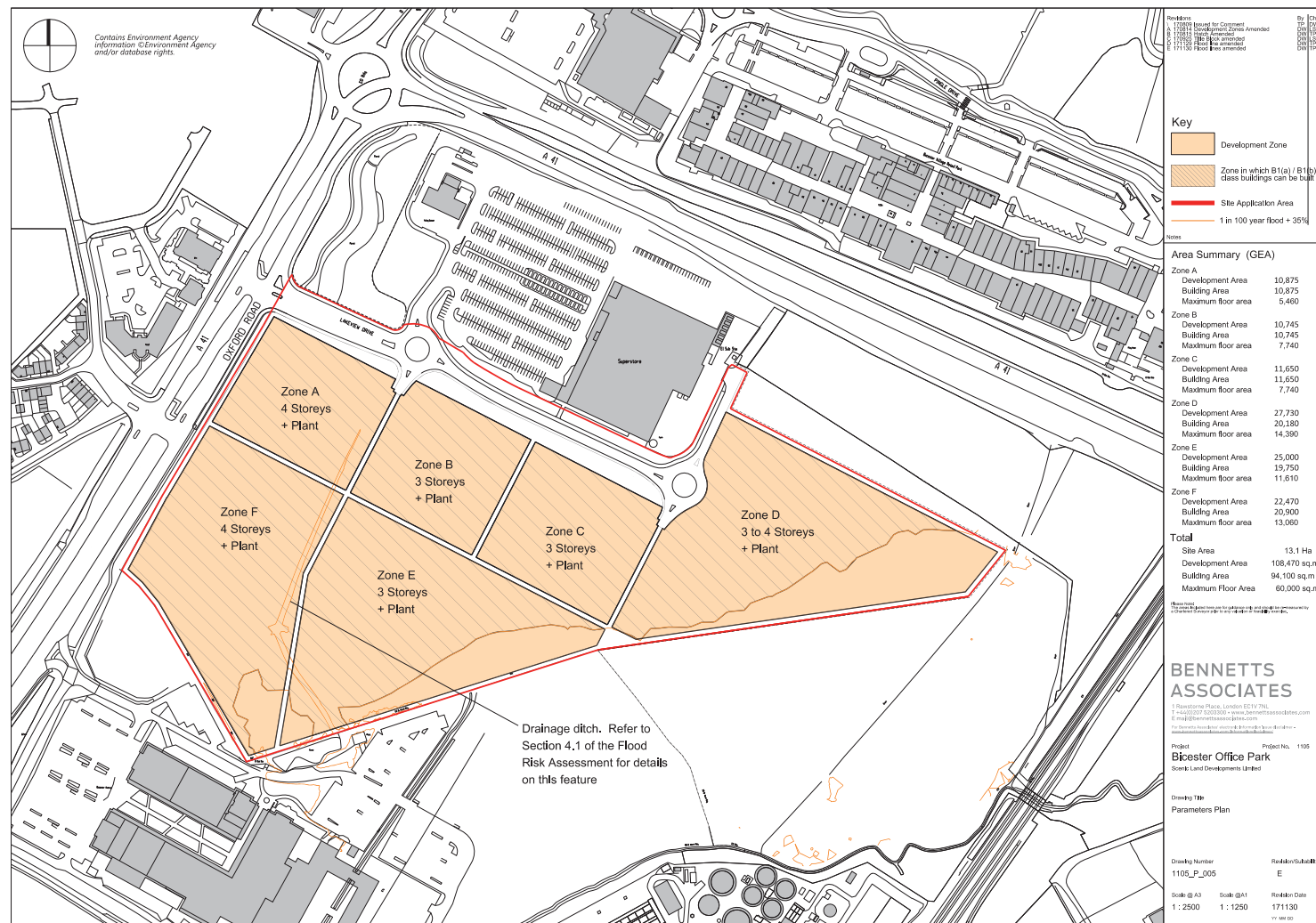
## Appendix A Topographic and LiDAR survey



## Appendix B Proposed Development



## Appendix C Environment Agency Consultation



## Appendix C Environment Agency Consultation



### Product 4 (Detailed Flood Risk) for Bicester Office Park, Oxfordshire, OX26 1DE Our Ref: THM48041

Product 4 is designed for developers where Flood Risk Standing Advice FRA (Flood Risk Assessment) Guidance Note 3 Applies. This is:  
i) "all applications in Flood Zone 3, other than non-domestic extensions less than 250 sq metres; and all domestic extensions", and  
ii) "all applications with a site area greater than 1 ha" in Flood Zone 2.

#### Product 4 includes the following information:

Ordnance Survey 1:25k colour raster base mapping;  
Flood Zone 2 and Flood Zone 3;  
Relevant model node locations and unique identifiers (for cross referencing to the water levels, depths and flows table);  
Model extents showing *defended* scenarios;  
FRA site boundary (where a suitable GIS layer is supplied);  
Flood defence locations (where available/relevant) and unique identifiers; (supplied separately)  
Flood Map areas benefiting from defences (where available/relevant);  
Flood Map flood storage areas (where available/relevant);  
Historic flood events outlines (where available/relevant, not the Historic Flood Map) and unique identifiers;  
Statutory (Sealed) Main River (where available within map extents);

#### A table showing:

- i) Model node X/Y coordinate locations, unique identifiers, and levels and flows for *defended* scenarios.
- ii) Flood defence locations unique identifiers and attributes; (supplied separately)
- iii) Historic flood events outlines unique identifiers and attributes; and
- iv) Local flood history data (where available/relevant).

#### Please note:

If you will be carrying out computer modelling as part of your Flood Risk Assessment, please request our guidance which sets out the requirements and best practice for computer river modelling.

This information is based on that currently available as of the date of this letter. You may feel it is appropriate to contact our office at regular intervals, to check whether any amendments/ improvements have been made. Should you re-contact us after a period of time, please quote the above reference in order to help us deal with your query.

This information is provided subject to the enclosed notice which you should read.

This letter is not a Flood Risk Assessment. The information supplied can be used to form part of your Flood Risk Assessment. Further advice and guidance regarding Flood Risk Assessments can be found on our website at:

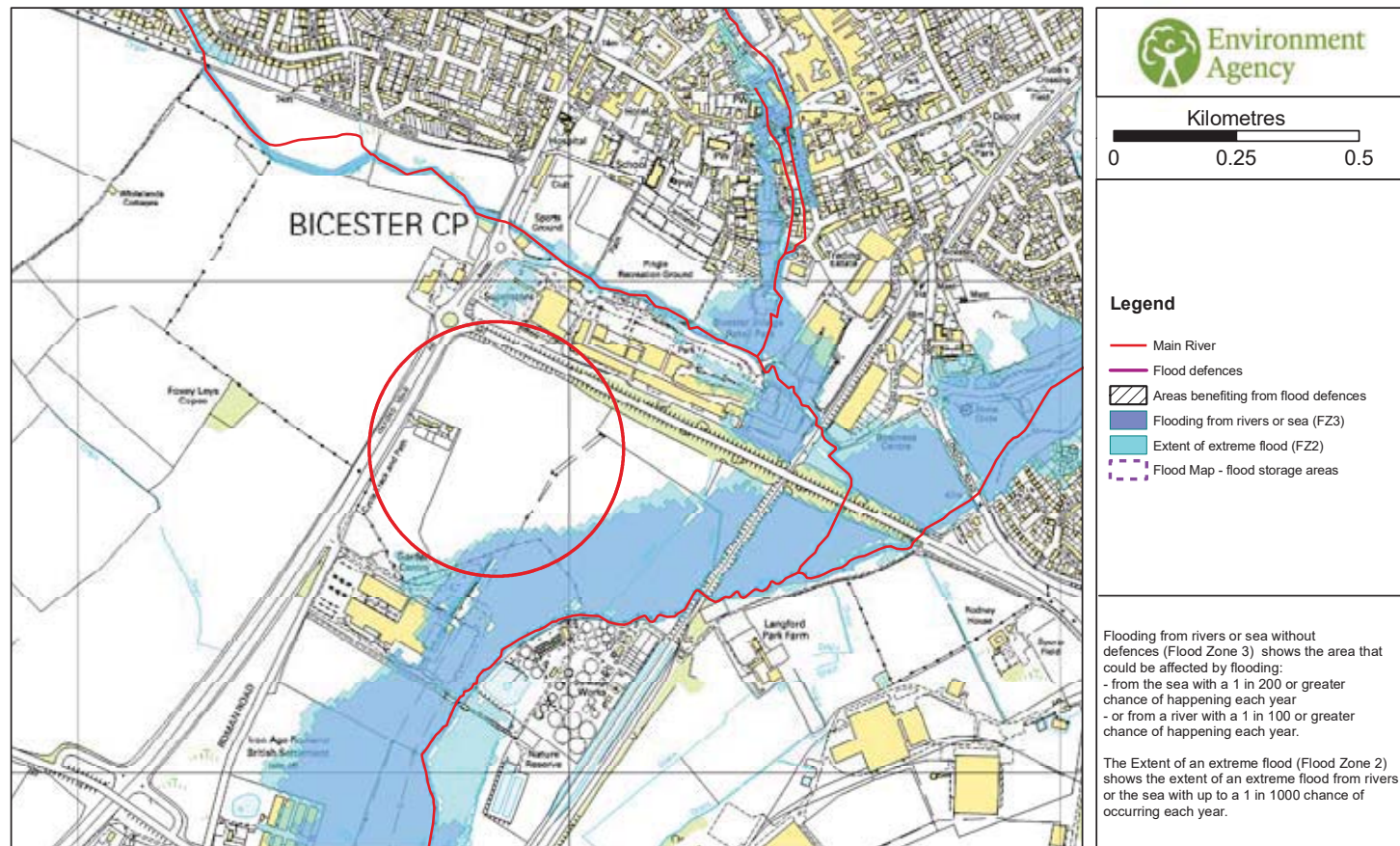
<https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities>

If you would like advice from us regarding your development proposals you can complete our pre application enquiry form which can be found at:

<https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>



**Flood Map for Planning centred on Lakeview Drive Bicester OX26 1DE**  
**Created on 23/05/17 REF: THM48041**



**Defence information**

Defence Location: **No defences on Main River**

Description: This location is not currently protected by any formal defences and we do not currently have any flood alleviation works planned for the area. However we continue to maintain certain watercourses and the schedule of these can be found on our internet pages.



THM48041

Model information

Model: Langford Brook (Bicester) & Pingle-Back-Bure 2010

Description: The information provided is from the Langford Brook (Bicester) & Pingle-Back-Bure 2010 detailed mapping project. The study was carried out using 2D modelling software (ISIS-Tuflow).

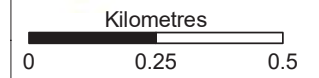
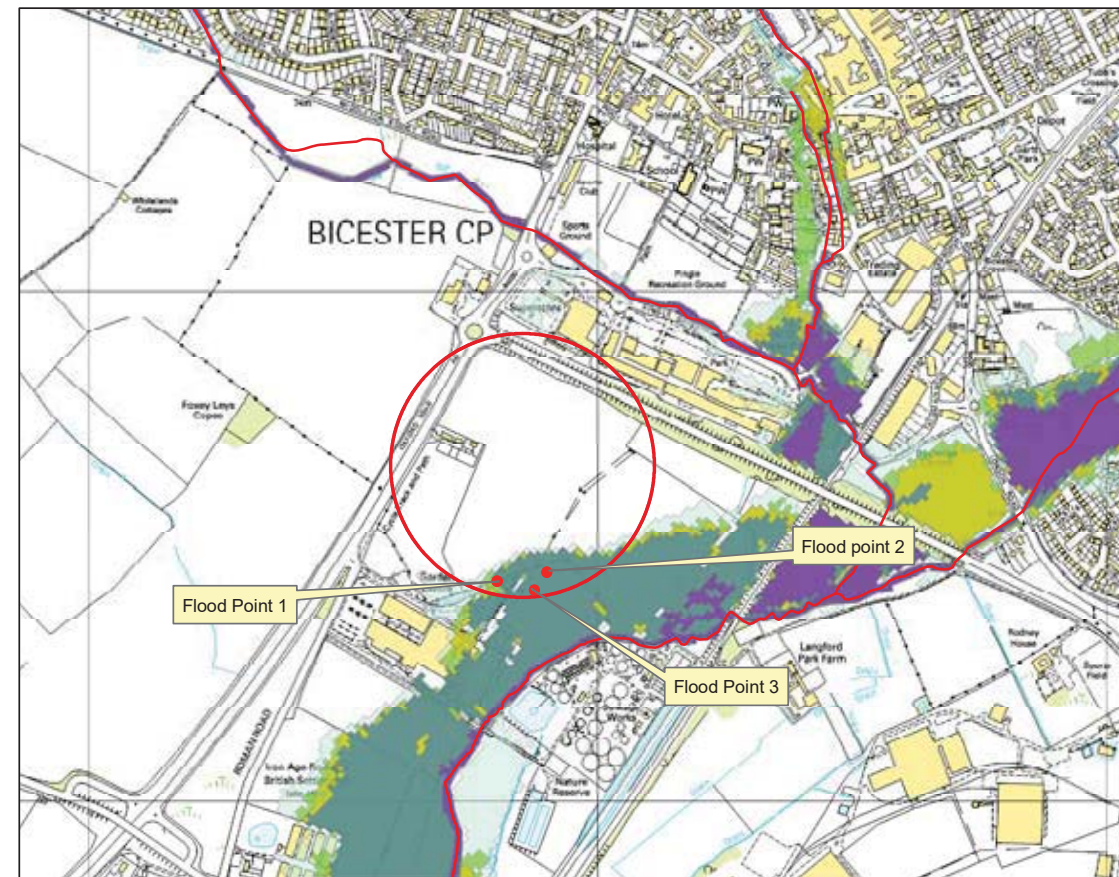
Model design runs: 1 in 5 / 20% Annual Exceedance Probability (AEP); 1 in 20 / 5% AEP; 1 in 50 / 2% AEP; 1 in 100 / 1% AEP; 1 in 100+20% / 1% AEP plus 20% increase in flows and 1 in 1000 / 0.1% AEP

Mapped Outputs: 1 in 5 / 20% AEP; 1 in 20 / 5% AEP; 1 in 50 / 2% AEP; 1 in 100 / 1% AEP and 1 in 1000 / 0.1% AEP

Model accuracy: Levels ± 250mm

© Environment Agency 2013

Detailed FRA centred on Lakeview Drive Bicester OX26 1DE  
Created on 23/05/17 REF: THM48041



- Legend**
- Main River
  - 20% AEP
  - 5% AEP
  - 2% AEP
  - 1% AEP
  - 0.1% AEP

AEP = Annual Exceedance Probability  
The probability of a flood of a particular magnitude, or greater, occurring in any given year

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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



### Modelled floodplain flood levels

THM48041

The modelled flood levels for the closest most appropriate model grid cells for your site are provided below:

2D grid cell reference	Model	Easting	Northing	flood levels (mAOD)								
				20% AEP	5% AEP	2% AEP	1% AEP	1% AEP (+20% increase in flows)	1% AEP (+25% increase in flows)	1% AEP (+35% increase in flows)	1% AEP (+70% increase in flows)	0.1% AEP
Flood Point 1	Langford Brook (Bicester) & Pingle-Back-Bure 2010	457,806	221,434		64.66	64.70	64.74	64.78				64.85
Flood Point 2	Langford Brook (Bicester) & Pingle-Back-Bure 2010	457,904	457,904		64.67	64.72	64.76	64.80				64.90
Flood Point 3	Langford Brook (Bicester) & Pingle-Back-Bure 2010	457,876	221,413		64.64	64.70	64.73	64.78				64.86

This flood model has represented the floodplain as a grid. The flood water levels have been calculated for each grid cell.

Note:  
Due to changes in guidance on the allowances for climate change, the 20% increase in river flows should no longer be used for development design purposes. The data included in this Product can be used for interpolation of levels as part of an intermediate level assessment.

For further advice on the new allowances please visit <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>.



### Historic flood data

THM48041

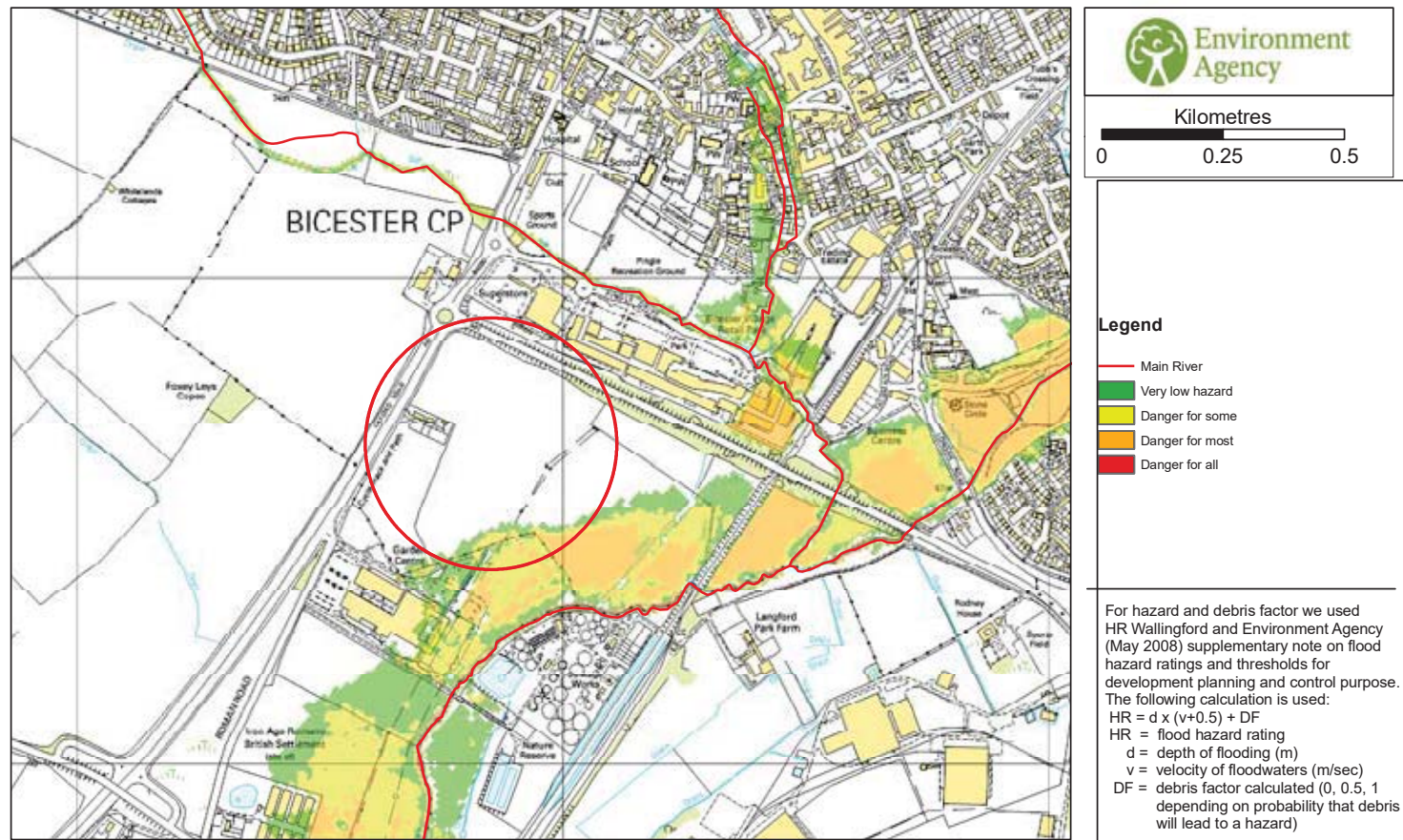
Our records show that the area of your site has been affected by flooding. Information on the floods that have affected your site is provided in the table below:

Flood Event Code	Flood Event Name	Start Date	End Date	Source of Flooding	Cause of Flooding
We hold no records of historic flooding for this location					

Please note the Environment Agency maps flooding to land not individual properties. Floodplain extents are an indication of the geographical extent of a historic flood. They do not provide information regarding levels of individual properties, nor do they imply that a property has flooded internally.

Start and End Dates shown above may represent a wider range where the exact dates are not available.

**Hazard Map centred on Lakeview Drive Bicester OX26 1DE**  
**Created on 23/05/17 REF: THM48041**



THM48041

**Hazard Mapping**

Hazard Mapping methodology:

To calculate flood hazard with the debris factor we have used the supplementary note to Flood Risk to People Methodology (see below). The following calculation is used:

$$HR = d \times (v+0.5) + DF$$

Where HR = flood hazard rating  
 d = depth of flooding (m)  
 v = velocity of floodwaters (m/sec)  
 DF = debris factor calculated (0, 0.5, 1 depending on probability that debris will lead to a hazard)

The resultant hazard rating is then classified according to:

Flood Hazard	Colour	Hazard to People Classification
Less than 0.75	Green	Very low hazard - Caution
0.75 to 1.25	Yellow	Danger for some - includes children, the elderly and the infirm
1.25 to 2.0	Orange	Danger for most - includes the general public
More than 2.0	Red	Danger for all - includes the emergency services

REF: HR Wallingford and Environment Agency (May 2008) Supplementary note of flood hazard ratings and thresholds for development planning and control purpose – Clarification of the Table 113.1 of FD2320/TR2 and Figure 3.2 of FD2321/TR1

Red Kite House, Howbery Park, Wallingford, Oxon OX10 8BD  
 Customer services line: 08708 506 506  
 Email: [WTenquiries@environment-agency.gov.uk](mailto:WTenquiries@environment-agency.gov.uk)

[www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

# Thames Area Climate Change Allowances

Guidance for their use in flood risk assessments

Jan 2017

**We recently updated our national guidance on climate change allowances for Flood Risk Assessments. The following information provides additional local guidance which applies to developments within our Thames area boundary.**

## Climate change allowances - overview

The National Planning Practice Guidance refers planners, developers and advisors to the Environment Agency to our guidance on considering climate change in Flood Risk Assessments. We updated this guidance in February 2016 and it should be read in conjunction with this document to inform planning applications, local plans, neighbourhood plans and other projects. It provides:

- Climate change allowances for peak river flow, peak rainfall, sea level rise, wind speed and wave height
- A range of allowances to assess fluvial flooding, rather than a single national allowance
- Advice on which allowances to use for assessments based on vulnerability classification, flood zone and development lifetime

Updated climate change allowances guidance:

<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

National Planning Practice Guidance:

<http://planningguidance.communities.gov.uk/>

## Assessing climate change impacts on fluvial flooding

Table A below indicates the level of technical assessment of climate change impacts on fluvial flooding appropriate for new developments depending on their scale and location (flood zone). Please note that this should be used as a guide only. Ultimately, the agreed approach should be based on expert local knowledge of flood risk conditions, local sensitivities and other influences.

Applicants and consultants may contact the Environment Agency at the pre-planning application stage to confirm the assessment approach on a case-by-case basis. We provide standard guidance free of charge or bespoke advice for a fee for developments for which we are a statutory consultee. If your development is instead covered by Flood Risk Standing Advice, we recommend you contact the relevant Local Planning Authority for their guidance and confirmation of the assessment approach. Flood Risk Standing Advice can be found here:

<https://www.gov.uk/flood-risk-assessment-local-planning-authorities>

Table A defines three possible approaches to account for flood risk impacts due to climate change in new development proposals:

1. **Basic** - Developer can add an allowance to the 'design flood' (i.e. 1% annual probability) peak levels to account for potential climate change impacts. The allowance should be derived and agreed locally by Environment Agency teams.
2. **Intermediate** - Developer can use existing modelled flood and flow data to construct a stage-discharge rating curve, which can be used to interpolate a flood level based on the required peak flow allowance to apply to the 'design flood' flow.
3. **Detailed** - Perform detailed hydraulic modelling, through either re-running Environment Agency hydraulic models (if available) or construction of a new model by the developer.

**Table A – Indicative guide to assessment approach**

Vulnerability classification	Flood zone	Assessment by development type		
		Minor	Small-Major	Large-Major
Essential infrastructure	Zone 2	Detailed		
	Zone 3a	Detailed		
	Zone 3b	Detailed		
Highly vulnerable	Zone 2	Intermediate/Basic	Intermediate/Basic	Detailed
	Zone 3a	Not appropriate development		
	Zone 3b	Not appropriate development		
More vulnerable	Zone 2	Basic	Basic	Intermediate/Basic
	Zone 3a	Basic	Detailed	Detailed
	Zone 3b	Not appropriate development		
Less vulnerable	Zone 2	Basic	Basic	Intermediate/Basic
	Zone 3a	Basic	Basic	Detailed
	Zone 3b	Not appropriate development		
Water compatible	Zone 2	None		
	Zone 3a	Intermediate/Basic		
	Zone 3b	Detailed		

### Definitions of terms in Table A

#### Minor

1-9 dwellings/less than 0.5 ha; office/light industrial under 1ha; general industrial under 1 ha; retail under 1 ha; travelling community site between 0 and 9 pitches.

#### Small-Major

10 to 30 dwellings; office/light industrial 1ha to 5ha; general industrial 1ha to 5ha; retail over 1ha to 5ha; travelling community site over 10 to 30 pitches.

#### Large-Major

30+ dwellings; office; light industrial 5ha+; general industrial 5ha+; retail 5ha+; gypsy/traveller site over 30+ pitches; any other development that creates a non-residential building or development over 1000 sqm.

Further info on vulnerability classifications:

<http://planningguidance.communities.gov.uk/blog/guidance/flood-risk-and-coastal-change/flood-zone-and-flood-risk-tables/table-2-flood-risk-vulnerability-classification/>

Further info on flood zones:

<http://planningguidance.communities.gov.uk/blog/guidance/flood-risk-and-coastal-change/flood-zone-and-flood-risk-tables/table-2-flood-risk-vulnerability-classification/>

## Specific local considerations

Where the Environment Agency and the applicant or their consultant has agreed that a basic level of assessment is appropriate, the figures in Table B below can be used as an allowance for potential climate change impacts on peak design (i.e. 1% annual probability) fluvial flood level rather than undertaking detailed modelling.

**Table B – Local allowances for potential climate change impacts**

Watercourse	Central	Higher central	Upper
Thames	500mm	700mm	1000mm

Use of these allowances will only be accepted after discussion with the Environment Agency.

## Fluvial food risk mitigation

Please use the [national guidance](#) to find out which allowances to use to assess the impact of climate change on flood risk.

For planning consultations where we are a statutory consultee and our [Flood Risk Standing Advice](#) does not apply, we use the following benchmarks to inform flood risk mitigation for different vulnerability classifications.

**These benchmarks are a guide only. We strongly recommend you contact us at the pre-planning application stage to confirm this on a case-by-case basis. Please note you may be charged for pre-planning advice.**

For planning consultations where we are not a statutory consultee or where our Flood Risk Standing Advice does apply, we recommend local planning authorities and developers use these benchmarks but we do not expect to be consulted.

### Essential Infrastructure

For these developments, our benchmark for flood risk mitigation is for it to be designed to the **upper end** climate change allowance for the epoch that most closely represents the lifetime of the development, including decommissioning.

### Highly Vulnerable

For these developments in flood zone 2, the **higher central** climate change allowance is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **upper end** allowance.

### More Vulnerable

For these developments in flood zone 2, the **central** climate change allowance is our minimum benchmark for flood risk mitigation. In flood zone 3 the **higher central** climate change allowance is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **higher central** (in flood zone 2) and the **upper end** allowance (in flood zone 3).

### Water Compatible or Less Vulnerable

For these developments, the **central** climate change allowance for the epoch that most closely represents the lifetime of the development is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **higher central** to inform built in resilience, particularly in flood zone 3.

*Further info on our Flood Risk Standing Advice:*

<https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities>

**There may be circumstances where local evidence supports the use of other data or allowances. Where you think this is the case we may want to check this data and how you propose to use it.**

## For more information

Please contact our Thames area Customers and Engagement team:

[Enquiries\\_THM@environment-agency.gov.uk](mailto:Enquiries_THM@environment-agency.gov.uk)

customer service line  
03708 506 506

incident hotline  
0800 80 70 60

floodline  
0345 988 1188

[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

creating a better place



Ms Clare Jones  
Buro Happold Ltd.  
Infrastructure Water  
17 Newman Street  
London  
W1T 1PD

**Our ref:** ENVPAC/WTHAMS/00432  
(WA/2017/124029/01-L01)

**Date:** 27 June 2017

Dear Ms Jones

**The proposed development, includes the construction of a business park comprising between 55,000 and 60,000m2 office use (B1), parking for approximately 2,000 cars, associated highway, infrastructure and earthworks.**

**Bicester Office Park, Oxfordshire, OX26 1DE**

Thank you for consulting us. We received confirmation to proceed with the work on 22 June and we are now in a position to respond.

We have reviewed the following documents:

- Emails from Clare Jones (Buro Happold), dated 02, 22, 27 June 2017
- Pre-application Enquiry Form
- Draft EIA Scoping Report produced by TRIUM Environmental, dated 15 May 2017
- Drawing 1105(SK)058 Rev A – Site Plan
- Drawing 1105(SK)065 Rev B – Parking Provision
- Drawing WSKL001 Rev 01 – Flood Extents 2017
- Drawing WSKL002 Rev 01 – 2007 and 2017 Flood Extents
- Drawing WSKL003 Rev 00 – Flood Extents Derived From Topographic Levels
- Drawing WSKL004 Rev 00 – Flood Extents Derived From 2011 LiDAR Data

We have reviewed the draft EIA Scoping report in relation to Flood Risk only as confirmed under our charging agreement. We disagree that the Flood Risk topic area should be scoped out of the EIA. Flood risk to this site is surely one of the most significant environmental impacts affecting this site and therefore should warrant assessment within the EIA. The reasoning given within the Scoping Report for scoping out this topic is frankly misinterpreting the level of risk on site. It fails to acknowledge that there are areas of this site at the highest level of flood risk (Flood Zones 3a and 3b). We would therefore be likely to object if an EIA was submitted for this site that did not include a chapter on flood risk.

We can confirm that the site is affected by the 1 in 20 year modelled flood extent and we consider this to be the functional floodplain (Flood Zone 3b). In normal circumstances we would not accept development of this type in areas at this high risk.

Cont/d..

However, this site has been allocated (Bicester 4) within the Cherwell District Council Local Plan and has been sequentially tested. We therefore have no in principle objection on flood risk grounds to this site coming forward for development.

To ensure that Policy Bicester 4 clearly states that a sequential approach should be followed and that where possible buildings should be located away from the highest risk of flooding. We are pleased to see from the drawings you have provided that no buildings are proposed within the 1 in 20 (functional floodplain) extents. We would accept car parking within this area of highest risk providing that there was no raising of ground levels.

However, we would expect that a sequential approach is taken to ensure that no built development is located in areas up to the 1 in 100 year plus climate change (plus 35%) flood level. We note that you have carried out an intermediate assessment to establish a new climate change level and then mapped it on a topographic survey. This shows buildings located in the 1 in 100 year plus climate change (plus 35%) flood extent which we feel is not in line with the principles of Bicester Policy 4.

We strongly advise that any master plan is re-orientated so that there is no built development or ground raising in areas within the 1 in 100 year plus climate change (plus 35%) flood extent. There appears to be plenty of car parking in areas at much lower risk and so we see no need to place any buildings within this area of risk.

We also have concerns that the 1 in 100 year plus climate change (plus 35%) flood level has been established by using the intermediate approach. Please find attached the Thames Climate Change Guidance which clearly states that a detailed assessment is required for 'Large-Major' development in Flood Zone 3a or 3b.

In summary, the scoping report is inadequate as it fails to represent the true level of flood risk affecting this site and makes recommendations that are flawed. The 1 in 100 year plus climate change flood level needs to be established by carrying out a detailed assessment as outlined in our guidance. The site must be developed in accordance with the principles as set out in Bicester Policy 4. This clearly stipulates that built development should be located in areas of the site at least flood risk.

Yours sincerely,

**Mr Jack Moeran**  
**Planning Specialist**

Direct dial 02030259655  
Direct e-mail [planning-wallington@environment-agency.gov.uk](mailto:planning-wallington@environment-agency.gov.uk)

End

2

**Clare Jones**

---

**From:** Moeran, Jack ·  
**Sent:** 24 July 2017 14:20  
**To:** Clare Jones  
**Subject:** RE: THM48041 Product 4 Bicester Office Park, Oxfordshire,OX26 1DE

\*\* External E-Mail \*\*

Hi Clare,

Yes I'm happy that this is an accurate reflection of our conversation.

One point I would just like to clarify is the following:

- The EA confirmed it was acceptable to have car parking with Functional Floodplain (1 in 20 year extent), providing it wasn't increasing the level of 'use vulnerability' from what is existing and that there was no ground raising.

Thanks,

Jack Moeran  
Planning Specialist

[FCRM Planning Specialist - PSO - Thames Area](#)

---

**From:** Clare Jones  
**Sent:** 27 June 2017 17:13  
**To:** 'Moeran, Jack' ·

**Subject:** RE: THM48041 Product 4 Bicester Office Park, Oxfordshire,OX26 1DE

Jack,

Thank you for your quick response to the pre-application enquiry. As a record of our earlier conversation today, please find below a summary of the items discussed:

EIA Water Chapter

- The EA has confirmed that they will require an EIA Water Chapter to be written for the site to accompany the Flood Risk Assessment for the Outline Planning Application. They explained that a site lying in Flood Zone 3(a and b) would be considered to be a significant environmental effect which would need to be assessed under an EIA. The EA advised that whilst an FRA was proposed, they would also expect to see the EIA Water Chapter.

Flood Extents

- The EA confirmed that the approach taken to define the flood extents for the 1 in 20, 1 in 100 and 1 in 1000 year using the flood levels against the topographic survey information was acceptable. Whilst the topographic survey information was available for most of the site, BHE explained that there was an area to the west where topo survey information was not available. The EA confirmed that it was acceptable to use LiDAR to define the flood extents in this area and to combine this with the flood extent derived from the topographic survey, provided this was explained on the drawings.
- The EA confirmed that they require hydraulic modelling to be undertaken to define the flood levels for the 1 in 100 + 25% and 1 in 100 + 35% climate change events. The same approach of deriving the flood extents based on

1

the topographic survey should be adopted. For the hydraulic modelling, the EA would expect to see an appendix to the FRA detailing the method adopted for the modelling and the results with a short summary in the FRA.

- The EA recommended that the flood extent plans submitted are overlaid with the parameter plan rather than the illustrative masterplan which could change in the future.

#### Development in the Flood Zones

- The EA confirmed it was acceptable to have car parking with Functional Floodplain (1 in 20 year extent), provided that there was no ground raising.
- The EA would seek that all buildings were located outside the 1 in 100 year + 35% extent.
- If ground raising is required between the 1 in 20 year and 1 in 100 year + climate change level (25%) then floodplain compensation would be required. BHE advised that parameter plans would be submitted for Outline planning and the need for flood compensation would not be known until detailed design. The EA agreed that this could be dealt with at a later date through a planning condition.

#### Finished Floor Levels

- The EA confirmed that the design flood event for the site is the 1 in 100 year +25% climate change event. The EA anticipate that the levels will be very close to the 1 in 100 year + 35% climate change event. The EA would seek that we adopt the 1 in 100 year +35% level with 300mm freeboard to define finished floor levels. The EA would review this if there was a significant difference in levels between the 1 in 100 year +25% climate change and 1 in 100 year +35% levels.

We would appreciate if you can review the above and confirm if this is an accurate record of the conversation.

Kind Regards  
Clare

Clare Jones CEng MICE  
Senior Engineer  
BuroHappold Engineering | Water  
T: +44 (0)1225 320600  
[www.burohappold.com](http://www.burohappold.com) | [@burohappold](https://twitter.com/burohappold)

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**From:** Moeran, Jack  
**Sent:** 27 June 2017 12:05  
**To:** Clare Jones  
**Subject:** RE: THM48041 Product 4 Bicester Office Park, Oxfordshire,OX26 1DE

\*\* External E-Mail \*\*

Hi Clare,

Please find attached our response.

If you wish to chat any of the content through with me then please don't hesitate to give me a call.

Kind regards,

Jack Moeran  
Planning Specialist

[FCRM Planning Specialist - PSO - Thames Area](#)

---

**From:** Clare Jones [<mailto:Clare.Jones@BuroHappold.com>]  
**Sent:** 27 June 2017 10:04  
**To:** Planning\_THM <[Planning\\_THM@environment-agency.gov.uk](mailto:Planning_THM@environment-agency.gov.uk)>

**Subject:** RE: THM48041 Product 4 Bicester Office Park, Oxfordshire,OX26 1DE

Jack,

Further to my email below, please find attached drawings showing the flood extents derived from survey data from both topographic survey information (2007) and LiDAR Data (2011, 1m resolution) with the illustrative masterplan. We would propose to refine the modelled flood extents to those defined from the topographic survey information. Unfortunately as the topo survey does not cover a section west of the site so for this section, we would propose to defer back to the LiDAR contour. The methodology for defining the flood extents is summarized below. We are intending to write this up in more detail for the FRA but before we do, we would appreciate the EA's view on this methodology. Also attached, are drawings showing the current EA extents overlaid with the illustrative masterplan and showing the flood extents from the 2007 OPA FRA for the site for information.

The flood extents have been derived by the following means:

- Flood model level information has been extracted from the Langford Brook (Bicester) & Pingle-Back- Bure 2010 ISIS-TUFLOW Model for Points A to G in the floodplain. It has been assumed that the levels within the floodplain are the same as within the corresponding point in the river channel. Using 3D modelling software, a flood level surface for each return period event has been created by interpolating between the flood level points defined in the floodplain and the channel.
- The survey information used (topographic survey or LiDAR) has been used to create a ground level surface by interpolating between the LiDAR contours/ topographic survey points.
- 3D modelling software has then been used to determine where the flood level meets the ground level surface. The model has defined a contour for each of the flood level extents which is provided on the attached drawings.

In addition to the 1 in 20, 1 in 100 and 1 in 1000 flood extents, the climate change allowance has been calculated. In accordance with February 2016 climate change guidance, for office developments (defined as Less Vulnerable) in Flood Zone 3a, the central and higher central allowances are required to be assessed. For the Thames region, this would require the 25% and 35% climate change allowances to be considered. We have defined these using the Intermediate approach as follows:

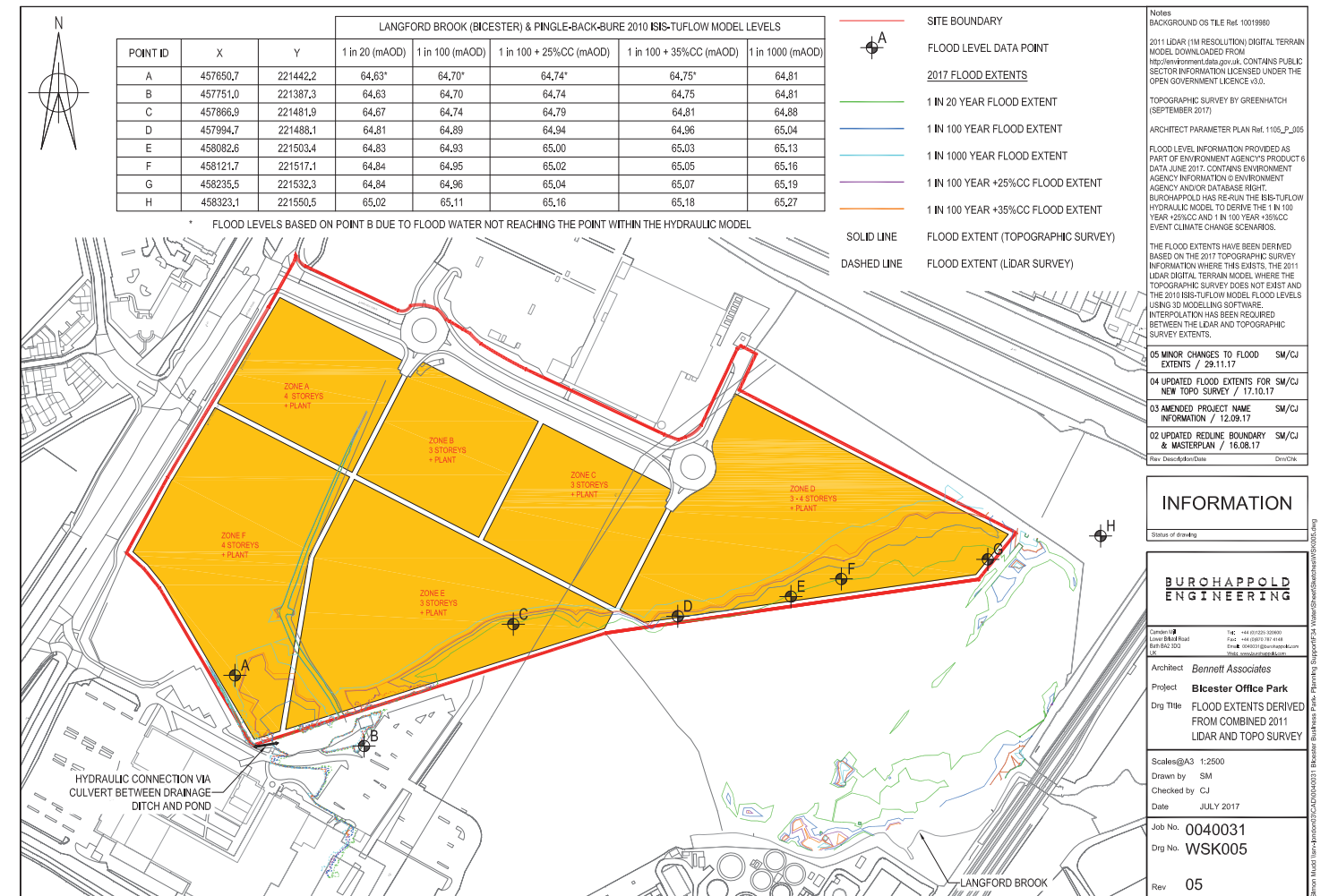
1. 1D flood levels and flows have been extracted out of the Langford Brook (Bicester) & Pingle-Back- Bure 2010 ISIS-TUFLOW Model for Points LA.0865, LA.0957 and LA.1350 for the 1 in 5, 1 in 20, 1 in 100, 1in 100+20% and 1 in 1000
2. The above flow (Q) data was plotted against flood level (H) data and a line of best fit derived.
3. For the 1 in 100 year + 25% and 1 in 100 year + 35%, the flood flows were calculated using the below relationship, with the 35% value used as an example:  
$$\left( \frac{100\text{yr}+20\%CC - 100\text{yr}}{20} \times (35 - 20) \right) + 100\text{yr}+20\%CC$$
4. Using the line of best fit HQ relationship, the flood levels for the 1D flood levels at A, B, C and G for the 1 in 100 year + 25% and 1 in 100 year + 35% have been calculated.
5. The 1 in 100 year + 25% and 1 in 100 year + 35% in the 2d domain have then been calculated based on scaling the level differences between the 1d and 2d domains from the other return periods.
6. For the remaining points (i.e. D,E and F, the levels have been interpolated)

Hopefully the above illustrates that we have taken an appropriate approach to defining the flood extents in this location. Please give me a call if you have any queries.

Kind Regards,




Appendix D Flood Extents Drawing



## Appendix E Hydraulic Modelling Summary

### Design Note

Project Bicester Office Park  
 Subject Hydraulic Modelling Summary  
 Project no 0040031  
 Date 17 July 2017

Revision	Description	Issued by	Date	Approved
00	Summary of hydraulic modelling to define flood extents	DKR	24/07/17	CEJ
01	Appendix B added	DKR	11/08/17	CEJ
02	Appendix A updated	CEJ	17/08/17	DKR
03	Final for Planning	CEJ	11/09/17	DKR
04	For Planning (updated survey)	CEJ	14/12/17	

### 1 Introduction

BuroHappold Engineering has produced the following note to summarise the work carried out to define the flood extents for the 1 in 100 year event including the effects of climate change using the latest Environment Agency (EA) guidance for climate change allowances.

Through the pre-planning application enquiry process, the EA confirmed that hydraulic modelling was required to define the flood levels for the 1 in 100 year with the new climate change allowances using the existing ISIS- TUFLOW model. This note provides a summary of the hydraulic modelling undertaken, the model output results and the derived flood extents.

The note is intended to support the flood risk assessment being carried out for the Bicester Office Park development, located to the south of Bicester.

### 2 Modelling Methodology

#### 2.1 Hydraulic Model

The EA provided a hydraulic model built by Peter Brett Associates in 2009 which covers the Langford Brook, Pingle Stream, Bure Brook and Back Brook watercourses in Bicester, Oxfordshire. The model has been built using detailed topographic survey and LiDAR topographic data and the model calibrated based on five recent (at time of model construction) flood events.

The model simulations were carried out using the following software versions:

- ISIS – version 3.1
- TUFLOW – version 2008-08-AH-iSP

This version of the hydraulic model will be referred to as the EA model to distinguish it from the models re-run by BuroHappold.

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**2.2 Re-baselining the Model 1 – Model Version**

On receipt of the EA model BuroHappold re-ran the model to attempt to replicate the results from the EA model which were provided separately by the EA.

Since the model was originally run, both ISIS and TUFLOW have updated their software. Since the versions listed above have been superseded it was not possible to re-run the models using the same software versions as the original models. To determine what the effect of changing the software versions would have on the model results a number of test simulations were carried out.

Following this investigation, it was decided to run the models using the following software versions:

- ISIS – version 3.7 using the backwards compatibility options to match the version 3.1 defaults.
- TUFLOW – version 2016-03-AE-iSP-w64

The results of these investigations showed that the flood levels predicted by the re-baselined model were lower than the flood levels provided by the Environment Agency. In the vicinity of the site the reductions in the modelled flood levels were of the order of 5mm and were therefore considered to be within modelling tolerances.

**2.3 Modelling the Effects of Climate Change**

The results provided by the Environment Agency included one climate change scenario, the 1 in 100 year event plus an allowance for climate change through increasing the inflow hydrographs by 20%. Following completion of the modelling process in 2009 the EA has updated its recommended allowances for how climate change should be represented.

The latest guidance for the Thames catchment recommends that climate change be considered through an uplift to the inflow hydrographs of 25%, 35% or 70%. The choice of climate change allowance depends on the land uses, and for the development site the EA has confirmed that the two scenarios to be tested are the 25% and 35% climate change scenarios.

The inflow hydrographs for the 1 in 100 year +25% and 1 in 100 year + 35% scenarios were developed by increasing the 1 in 100 year flow multiplier in ISIS by 25% or 35% in a similar manner to the way that the 1 in 100 year + 20% climate change scenario has been represented.

**2.4 Other changes to the Model**

No other changes to the model were made apart from those described in order to carry out the simulations using the latest software versions and to increase the flows for two new climate change scenarios.

**3 Model Results**

**3.1 Comparison against Previous Results**

The model results in the vicinity of the site were evaluated for eight locations in the 2d domain, referred to as locations A-H. These locations can be seen on the drawing provided in Appendix A along with the peak flood levels observed at these locations. A summary of the results are provided in Table 3-1 below and the hydraulic model outputs.

**Table 3-1 ISIS-TUFLOW Model levels at points on the site**

Point ID	1 in 100 year + 20% climate change (mAOD)	1 in 100 year + 25% climate change (mAOD)	1 in 100 year + 35% climate change (mAOD)
A	64.73*	64.74*	64.75*
B	64.73	64.74	64.75
C	64.79	64.79	64.81
D	64.94	64.94	64.96
E	65.00	65.00	65.03
F	65.02	65.02	65.05

G	65.04	65.04	65.07
H	65.16	65.16	65.18

\* Flood Levels based on Point B due to flood water not reaching the point within the hydraulic model.

The results showed that the peak water levels for the 1 in 100 year + 25% allowance for climate change event were overall similar to those reported for the 1 in 100 + 20% allowance for climate change event with differences of between 0-5mm.

Results from the 1 in 100 year + 35% run show increases in peak flood levels of approximately 15-35mm from the 1 in 100 year + 20% run in the floodplain to the south of the site.

**3.2 Generation of Flood Extents**

The peak flood levels from all of the models provided by the EA and simulated by BH were used to create 3d flood level surfaces for the section adjacent to the site.

A 3d topographic model was constructed using 12d software from the topographical survey for the site from 2017 and LiDAR information for the section of the site not covered by the topographic survey. The intersection of the flood level surface and the topographic surface was used to define the flood extent within the site for each of the flood events modelled.

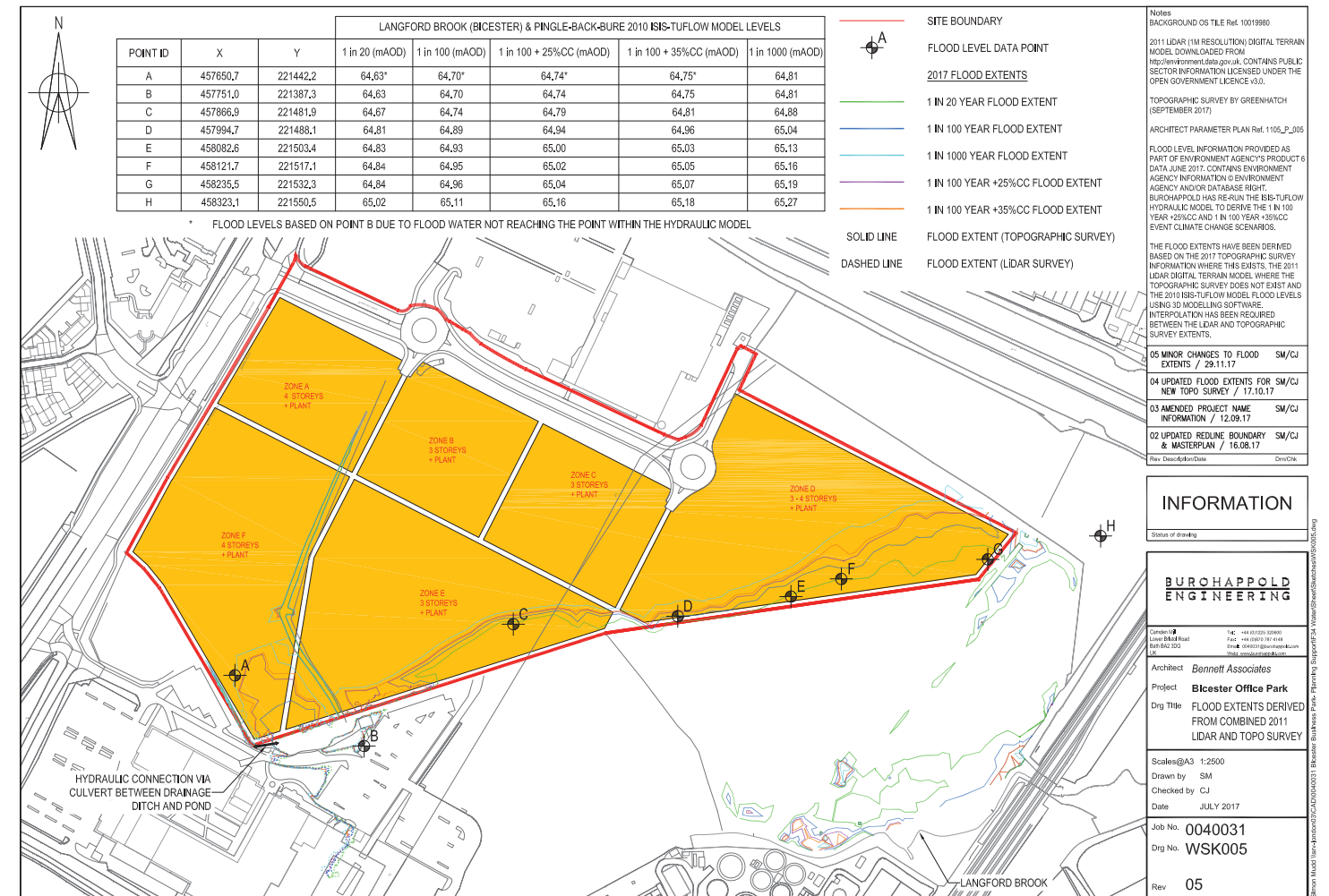
Since there are differences between the levels measured during the topographic survey and the LiDAR survey, due to the respective tolerances, there were some discontinuities between the flood extent lines at the boundary between the topographic survey and LiDAR surfaces. At these locations the flood extent line has been interpolated between the flood extents on either side of the discontinuity at the point where there is the least difference between the two surveys. A drawing showing the flood extent lines shown in Appendix A, with the locations where the flood extent line defined by the LiDAR and topographic survey clearly marked.

**4 Conclusions**

A hydraulic model constructed by PBA in 2009 has been rerun by BuroHappold using updated software versions to determine the peak flood levels in the 1 in 100 year event, including a 25% and 35% uplift in the hydrographs to allow for the effects of climate change based on the most recent guidance from the EA.

The peak flood levels from these simulations are shown in Appendix A and the model outputs provided in Appendix B.

Appendix A – Flood Extent Map



### Appendix B – Flood Model Outputs

The table below provides the maximum flood levels from the 1d model at each of the nodes in the vicinity of the site. The levels are to ordnance datum.

Node	1 in 20	1 in 100	1 in 100 + 20%	1 in 100 + 25%	1 in 100 + 35%	1 in 1000
LA.1408	65.454	65.640	65.728	65.759	65.809	65.954
LA.1362	65.299	65.429	65.491	65.515	65.557	65.684
LA.1350	65.268	65.378	65.424	65.442	65.473	65.572
LA.1350BU	65.268	65.378	65.424	65.442	65.473	65.572
LA.1350BD	65.268	65.378	65.424	65.442	65.473	65.571
LA.1873CU	65.832	65.996	66.128	66.138	66.165	66.257
LA.1350D	65.268	65.378	65.424	65.442	65.473	65.571
LA.0957	64.548	64.623	64.660	64.666	64.680	64.714
LA.0865	64.438	64.525	64.571	64.580	64.599	64.640
LA.0767	64.302	64.382	64.466	64.479	64.501	64.550
LA.0737	64.221	64.266	64.374	64.387	64.409	64.461
LA.0726	64.217	64.258	64.364	64.376	64.397	64.445
LA.0726BU	64.217	64.258	64.364	64.376	64.397	64.445
LA.0720BD	64.215	64.255	64.272	64.280	64.295	64.332
LA.0720	64.215	64.255	64.272	64.280	64.295	64.332
LA.0711	64.208	64.251	64.269	64.278	64.296	64.337

### Appendix F Drainage Strategy

**Bicester Office Park**  
**Drainage Strategy**

**040031**

3 July 2017

Revision 04

Revision	Description	Issued by	Date	Checked
00	Initial Issue	JW	9/8/17	LJ
01	Client name amended	JW	10/8/17	LJ
02	Red line plan amended	JW	16/8/17	LJ
03	Minor amendments	JW	08/9/17	LJ
04	Red line plan amended	JW	26/09/17	LJ

C:\Users\jwaiting\Documents\Bicester\170911 JW 040031 Drainage Strategy 04.docx

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author **John Waiting**

date **8/8/17**

approved **Les Johnson**

signature



Date **9/8/17**

..

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<b>3 Planning history</b>	<b>10</b>
<b>4 Existing drainage networks</b>	<b>11</b>
<b>5 Drainage strategy</b>	<b>15</b>
<b>6 Sustainable Drainage Systems (SuDS)</b>	<b>17</b>
<b>7 Conclusions.</b>	<b>20</b>
<b>Appendix A As built drainage network drawings</b>	

## 1 Executive summary

- 1.1 This report has been prepared to set out the drainage strategy in support of an outline planning application for 60,000 m<sup>2</sup> B1 development at Bicester Office Park.
- 1.2 The majority of the site area covered by the current planning application was subject to an outline planning application submitted in 2007. It subsequently received approval.
- 1.3 In 2011 a detailed application was submitted for a the primary infrastructure and a retail development. To accompany this a revised drainage strategy document was prepared to show how the relevant planning conditions that were attached to the outline permission were to be discharged.
- 1.4 As part of the primary infrastructure contract both foul and surface water sewers have been constructed to serve the proposed development. These have capacity for the foul and surface water flow rates from the proposed 60,000 m<sup>2</sup> B1 development.
- 1.5 The surface water runoff from the development will be limited to greenfield flow rates and the primary infrastructure has been design to reflect this. The on-site surface water drainage network will incorporate the recommendations of Sustainable Drainage Systems (SuDS) good practice.
- 1.6 The proposed development density of the masterplan will allow the incorporation of a significant area of green infrastructure. This will facilitate the provision of a number of different SuDS components within the detailed design of the surface water network

## 2 Introduction

- 2.1 This drainage strategy has been produced in support of an outline planning application for a 13Ha site known as the Bicester Office Park. BuroHappold has been involved with the development since 2007 when the first outline planning application was submitted, and have produced both Flood Risk Assessments and Drainage Strategies in support of the initial phases of development.
- 2.2 The site is located on the western side of Bicester, adjacent to the Bicester Outlet Shopping Village. An aerial view of the site is shown in figure 1 below.



Figure 1

- 2.3 It can be seen in figure 1 that a spine road (Lakeview Drive) to serve the development has been constructed in addition to a Tesco store. As part of the primary infrastructure contract both surface water and foul water drainage networks were constructed. These were designed to provide capacity to serve the development proposals covered by the outline planning application.

## 3 Planning history

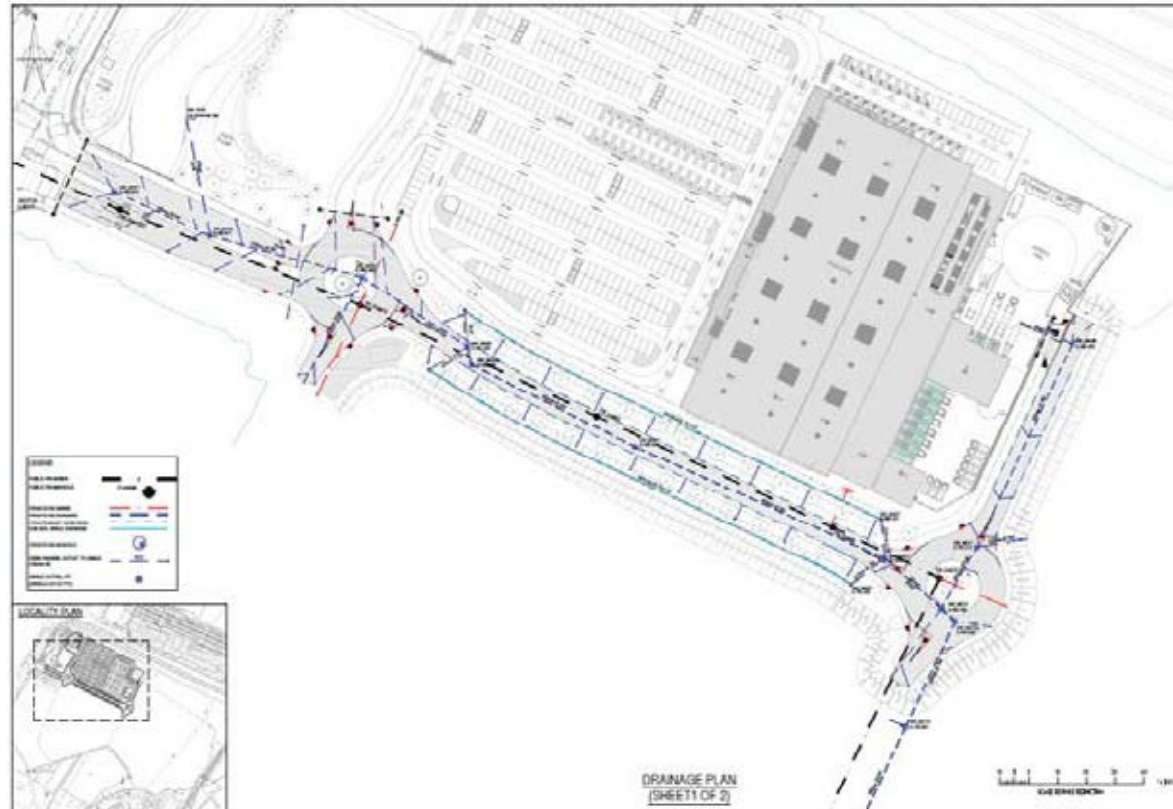
- 3.1 An outline planning application which covered most of the area of the current application was submitted in 2007. It subsequently received approval.
- 3.2 In 2011 a detailed application was submitted for a the primary infrastructure and a retail development (Tesco Store). To accompany this, a revised drainage strategy document was prepared to show how the relevant planning conditions that were attached to the outline permission were to be discharged.
- 3.3 As part of the current application a new Flood Risk Assessment has been prepared and this assumes that the surface water runoff from the undeveloped part of the site will be limited to 'Greenfield' run of rates i.e. the runoff will not exceed the flow rates that occur at present. In addition the associated attenuation measures for the developed site will be designed to accommodate the increased rainfall intensities in accordance with the climate change recommendations issued by the Environment Agency in February 2016.



## 4 Existing drainage networks

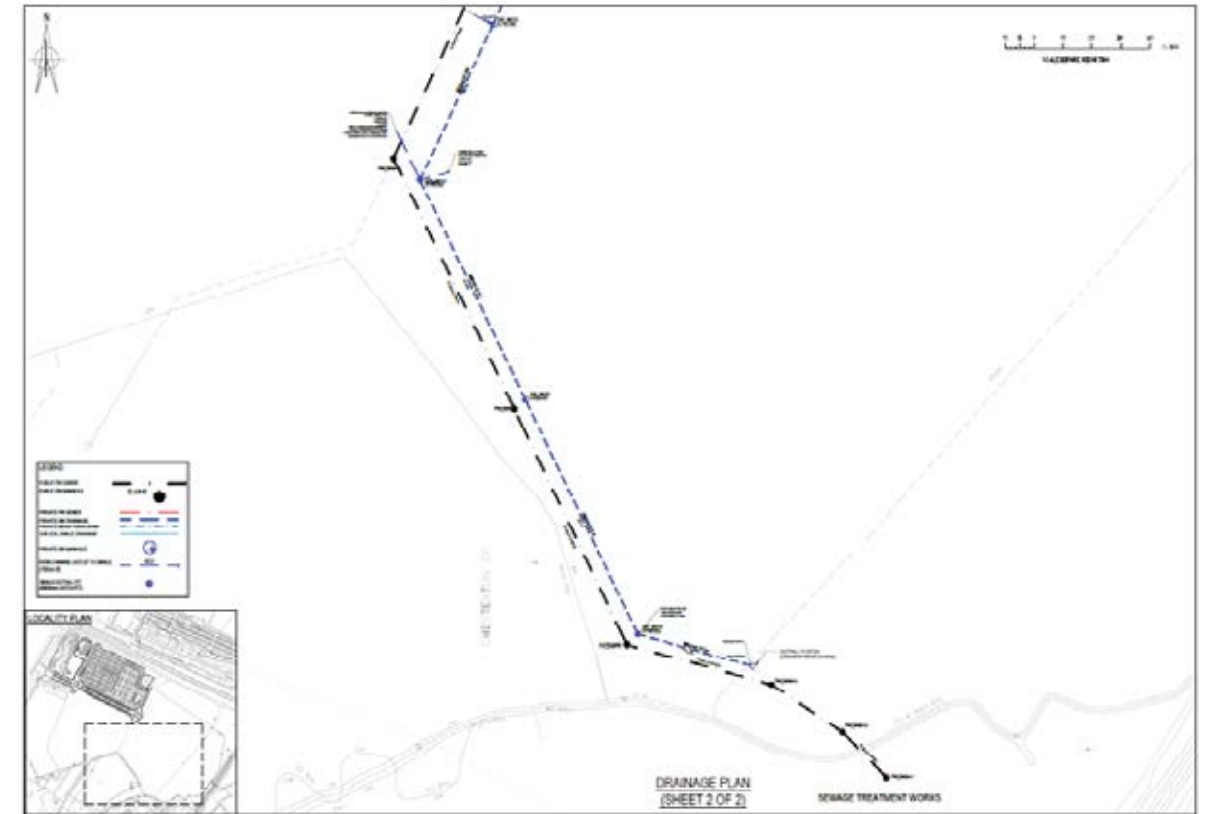
### 4.1 Surface Water

4.1.1 A surface water sewer network was constructed as part of the primary infrastructure works. The network associated with the access road is shown on the plan below.



The surface water infrastructure is shown by the blue dotted lines. Spurs have been left to facilitate drainage connections from the masterplan proposals.

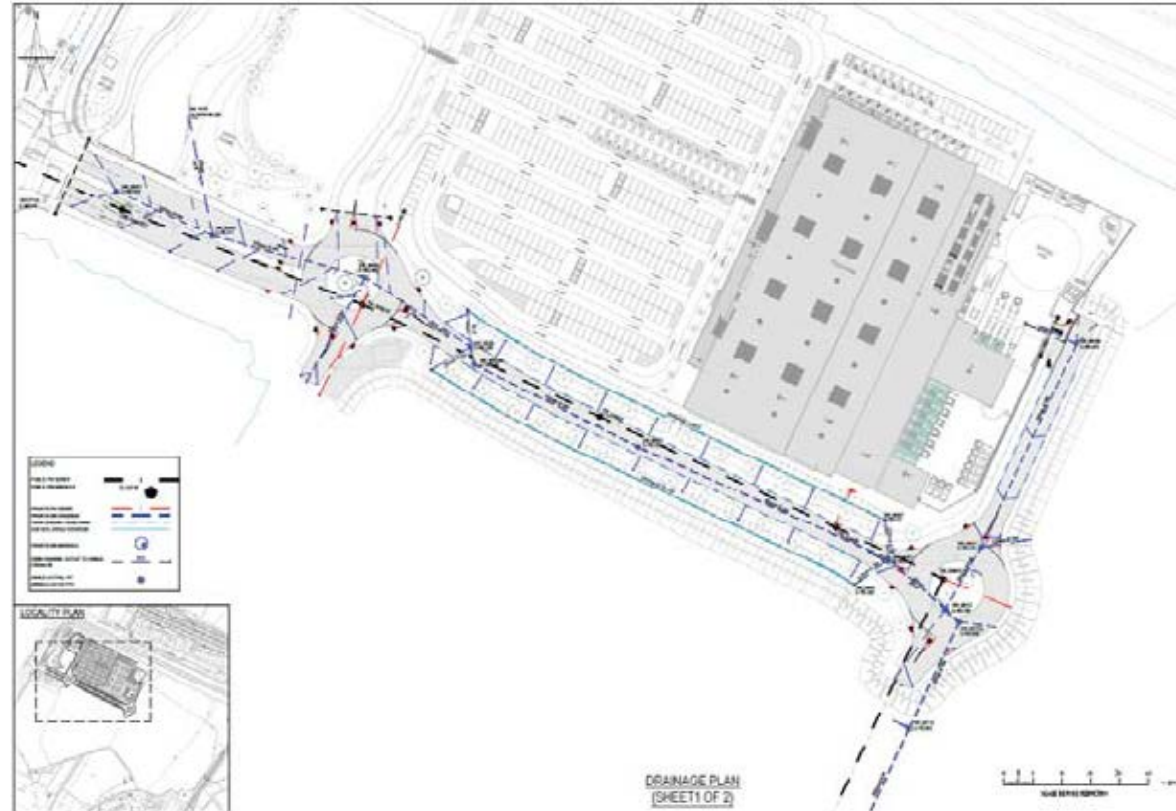
4.1.2 The plan below shows the route of the surface water sewer as it transverse the masterplan area before connecting to the ditch which then connects a stream known as the Langford Brook .



The surface water sewer is shown as a blue dotted line. As it will remain a private sewer in the ownership of the landowner there is no easement associated with it.

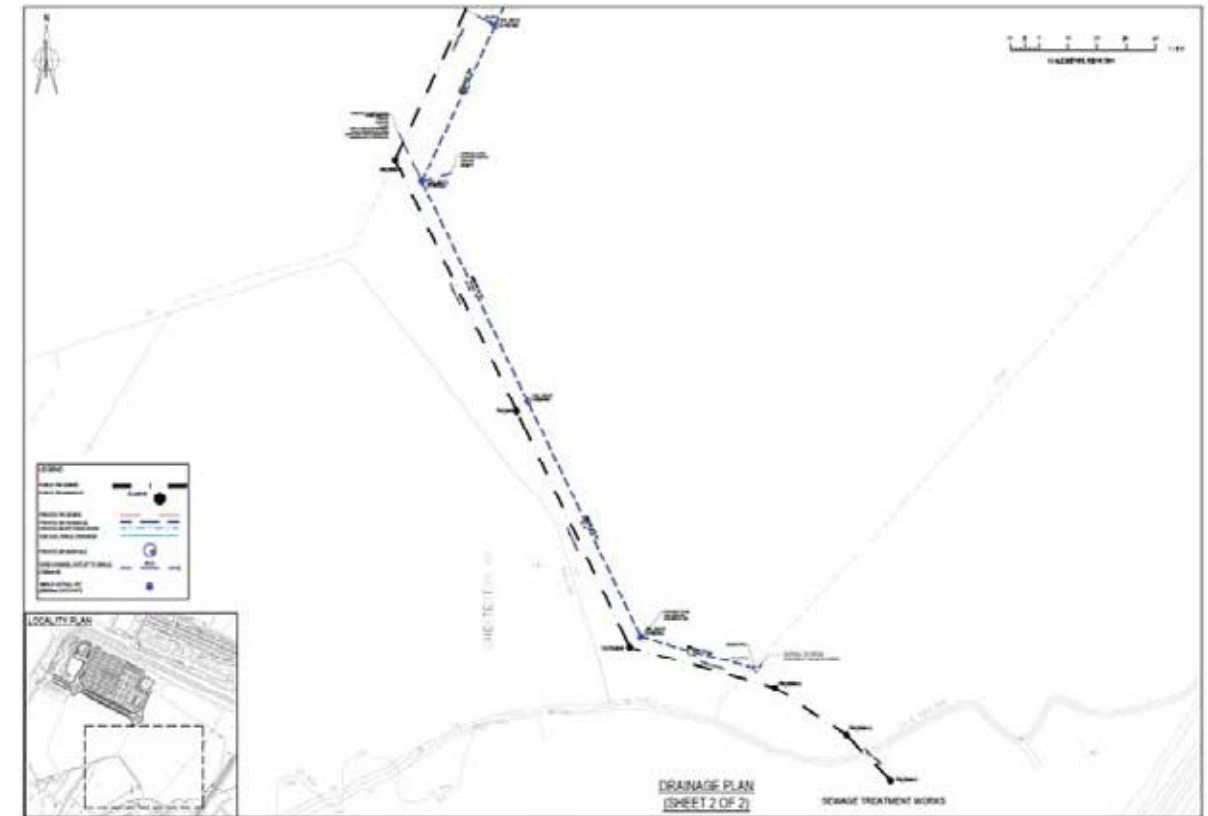
**4.2 Foul Water**

4.2.1 The route of the 600mm diameter public foul sewer under the access road is shown on the plan below



The foul sewer is shown by the dotted black line. The red lines show connection points that have been left to facilitate the future connection to serve the masterplan proposals.

4.2.2 The plan below shows the route of the public foul sewer as it transverses the masterplan area before connecting to the sewage treatment works.



The black dotted line shows the line of the public foul sewer it should be noted that there will be a 6 metre easement centred on the line of the sewer.

## 5 Drainage strategy

### 5.1 Surface Water

#### 5.1.1 Design parameters to be adopted

The surface water sewer was designed with a capacity to serve the masterplan proposals. In accordance with the previously agreed drainage strategy that surface water runoff from the developed site will be limited to current 'greenfield' runoff rates and onsite storage will be required. When carrying out the detailed design, the greenfield runoff rate will be estimated using the HR Wallingford *uksuds* tool. The sewer capacity of the constructed surface water drainage has been designed on this basis.

Surface water attenuation will be required to store the runoff from 1 in 100 year storm event + 20% climate change balanced against current Greenfield runoff rate for a 1 in 100 year storm. When the drainage strategy for the Tesco store was approved a Greenfield runoff rate for the site of 9.47 l/s/ha was agreed by the Local Drainage Authority (Oxfordshire County Council). When detailed planning application is made for the area within the red line the Greenfield runoff rate will need to be reconfirmed with the local Drainage Authority. The on-site attenuation/storage will be in accordance with Sustainable Drainage System (SuDS) design requirements.

#### 5.1.2 Sustainable Drainage Systems (SuDS)

In order to limit the runoff of the current 'Greenfield' rates the drainage system to serve the development will incorporate the recommendations within the current good practice guidance for SuDS contained in CIRIA Report C753, issued in 2015. This will be used to design the onsite drainage network unless superseded in the future.

The current guidance has been reviewed and the table in section 6 indicates which SuDS methods may be applicable for the Bicester Office Park Development.

#### 5.1.3 Water demand management.

As part of the primary infrastructure works a 150mm water main was laid under the access road and Thames Water have confirmed that this has sufficient capacity to meet the water demand requirements of the development proposals covered by the new outline planning application. However it is anticipated that rainwater harvesting may be suitable for the development and this would allow the water demand to be reduced as well providing attenuation in accordance with BS 8515:2009+A1 2013.

### 5.2 Foul Water

#### 5.2.1 General

A 600 mm public foul sewer constructed as part of the primary infrastructure works with blank connection points to serve the proposed development. The flow rates from the proposed development has been estimated based on the benchmarks for B1 uses. The total flow rate is from the completed development will be very low in comparison with the capacity of public sewer. It is not anticipated that there will be any flow restrictions placed on the connections by Thames Water.

#### 5.2.2 Design Criteria

The foul sewer network to serve the development will be designed in accordance with Sewers for Adoption 7<sup>th</sup> Edition or subsequent revisions.

## 6 Sustainable Drainage Systems (SuDS)

### 6.1 Sustainable Drainage Systems (SUDS)

SUDS will be utilised in the surface water drainage system in line with current good practice.

SUDS take account of the quality and quantity of surface water runoff together with the amenity value of surface water in the urban environment. These systems aim to provide a more sustainable solution than conventional drainage and should:

- Manage runoff flow rate, reducing the impact of urbanisation on flooding;
- Protect enhance water quality; and
- Be sympathetic to the environment setting and the needs of the local community.

There are several advantages to using SUDS that include:

- Effective control of peak flows;
- Improved water quality;
- Reduction in surface erosion;
- Reduced sewer surcharging and flooding as discharge flow rates are reduced; and
- Water conservation through rainwater harvesting and re-use.

The pollutants of concern that have been identified to include:

- Oils and Fuels. Sourced from leaks and spills;
- Suspended Solids. Sourced from traffic wear, and landscaping features;
- Chemicals. Typically detergents from washing activities;
- Litter. Sourced from bins and bin overflows, particularly within the public domain.

The surface water approach will incorporate various SUDS controls into the drainage system. It will include both source controls and larger downstream site (catchment) controls. These controls will work in series along the drainage system and it is envisaged they could include:

- Source Controls:
  - Provision of rainwater harvesting for individual buildings.
  - Use of green roofs.

*Note Green roofs and rainwater harvesting would not be used in combination*
- Catchment Controls including:
  - Trapped gullies as initial silt traps
  - End of line petrol interceptors.
  - Use of swales and ponds (see table 2)

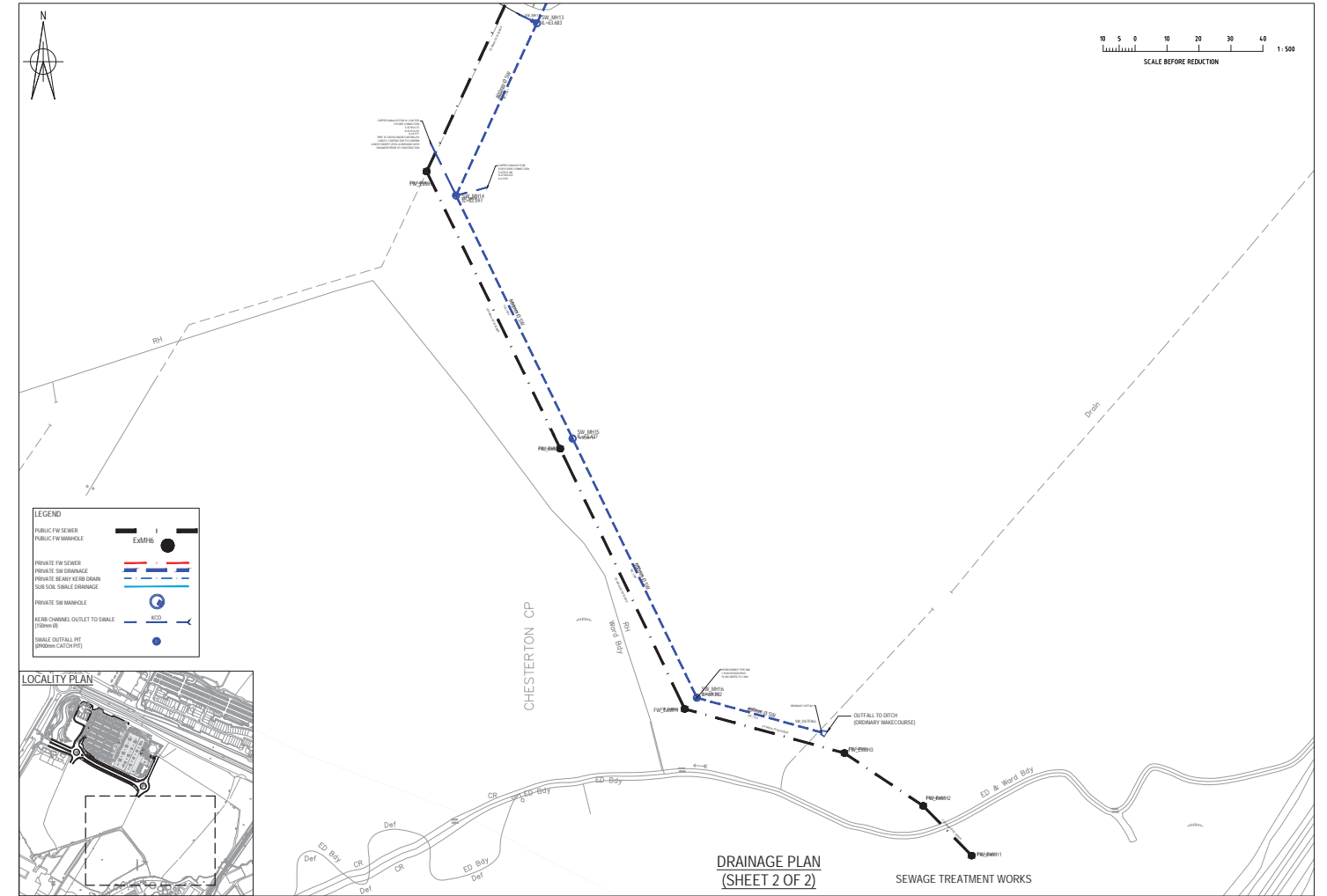
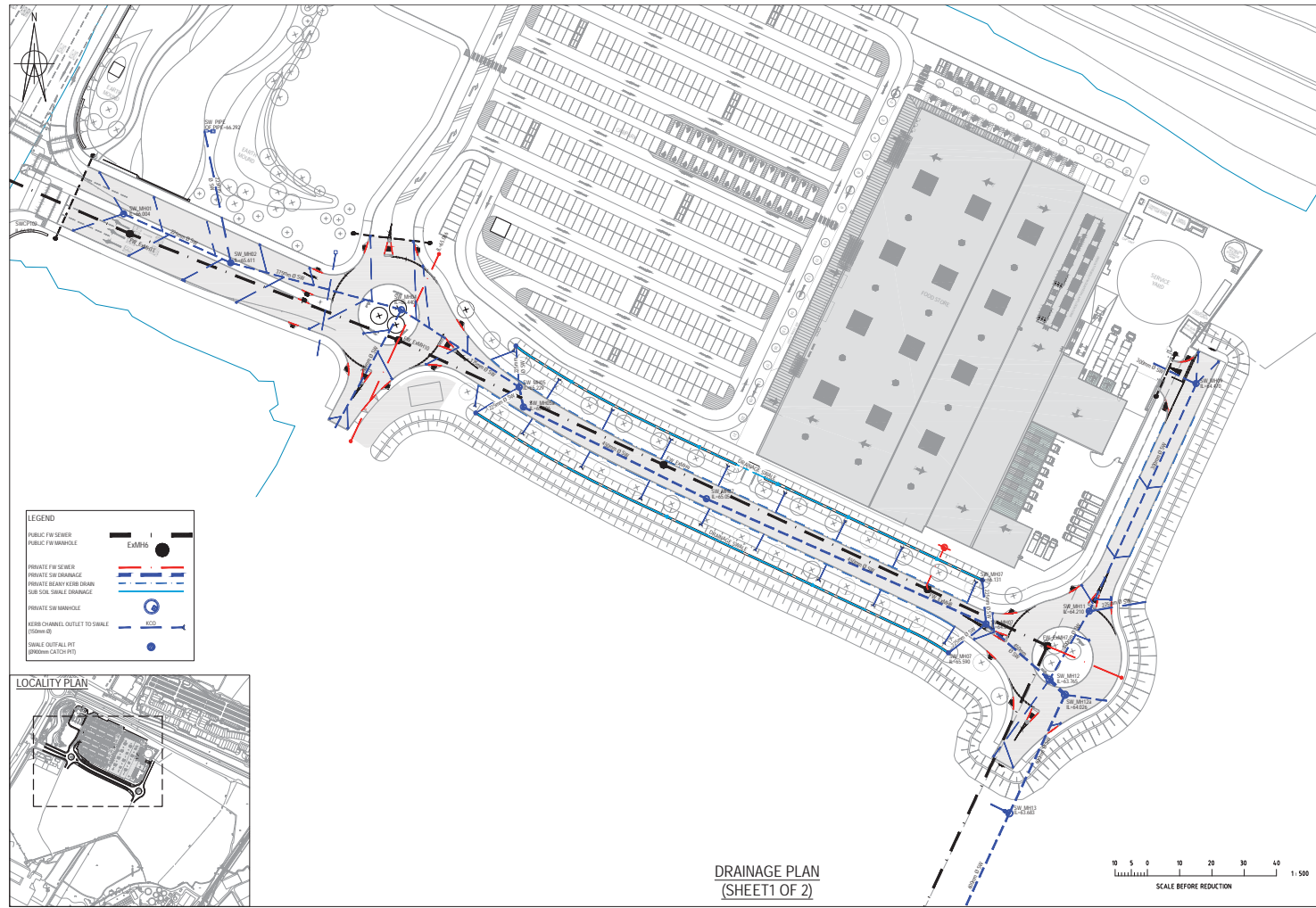
SUDS Systems	Suitability	Remarks
Ground Infiltration	×	Existing site constraints severely limit the application to this development area. These include: <ul style="list-style-type: none"> <li>• Low design infiltration rate of <math>2.4 \times 10^{-6}</math> m/s; and</li> <li>• Majority of the site is underlain by clay.</li> </ul>
Ponds/Wetlands	✓	A ponds or water features can be incorporated into the landscape proposals. The system would provide temporary storage required during storm events and promote pollutant removal.
Swales	✓	The swales were constructed adjacent to the access road to convey highway drainage. The system helps to reduce the rate of runoff provide infiltrations to the ground, and a degree of cleansing. These may be suitable for inclusion in the proposed landscaping.
French drains/Infiltration trenches	✓	An alternative to swales. The system helps to reduce the runoff, provide some infiltration or convey the storm water in pipes, and can be sited adjacent to the highways with little land take.
Below Ground Attenuation	✓	If insufficient storage can be provided above aground below ground storage tanks can be used. Note these can be used in combination with rainwater harvesting tanks see 5.1.3
Permeable Pavement	✓	Permeable pavement is recommended for all car parking areas. It is not suitable for servicing/waste storage areas

**Table 2 SuDS Components**

## 7 Conclusions.

- 7.1 Primary drainage infrastructure has been constructed to serve the development proposed within the outline planning application. It has sufficient capacity to accept the proposed surface water and foul flows from the quantum and type of development proposed, without requiring any reinforcement.
- 7.2 The surface water network will incorporate SuDS good practice and the runoff will be limited to the current greenfield runoff rates. The rate will need to be confirmed with the Local Drainage Authority when detailed planning application(s) are submitted. The 1 in 100 year Greenfield runoff rate agreed for the Tesco development was 9.47 l/s/ha.
- 7.3 Green infrastructure will be provided which will facilitate a wide range of SuDS components and it is anticipated that providing the required onsite surface water storage will not present a significant challenge.
- 7.4 The public foul sewer located under the access road has sufficient capacity to serve proposed development and connections have been left to serve the development.
- 7.5 The development can incorporate rainwater harvesting as part of the SuDS strategy. In addition to providing surface water storage it also would contribute to a reduction in potable water demand as part of a water resource management strategy.

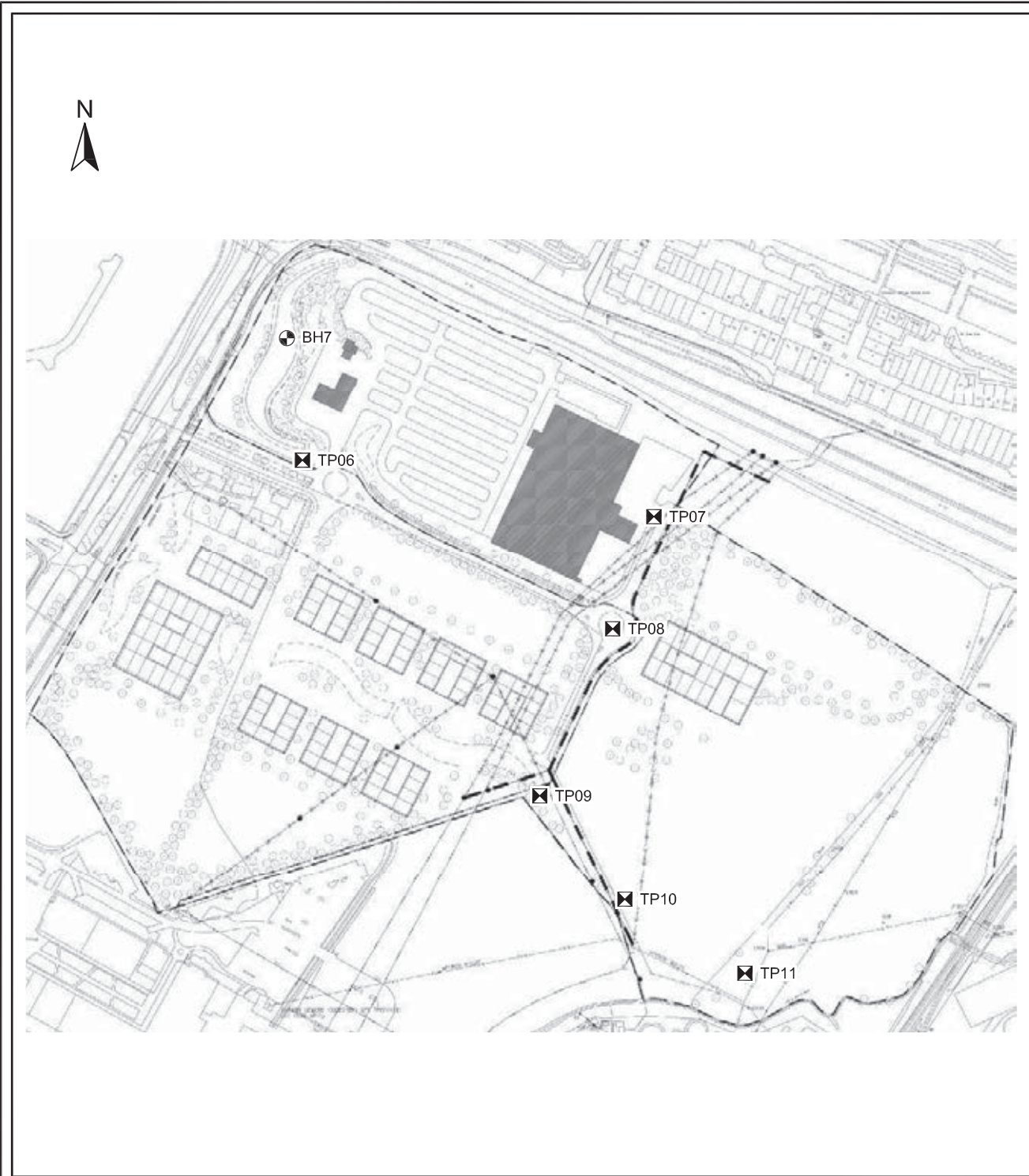
## Appendix A As built drainage network drawings



## Appendix G Ground Investigation Location Plan

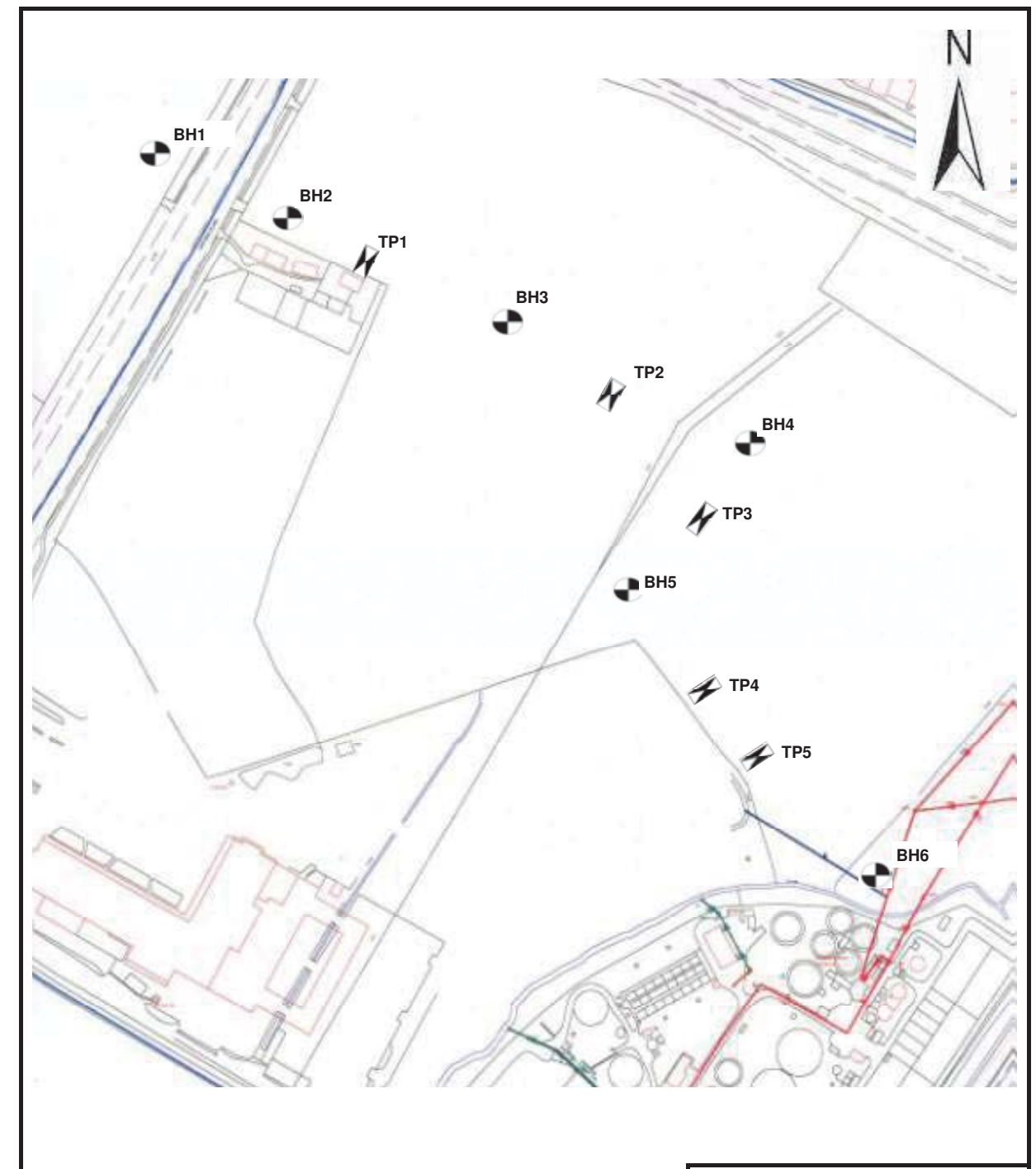
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<b>LEGEND</b>	Borehole Location
	Trial Pit Location

<b>STRUCTURAL SOILS LIMITED</b>						CLIENT	
The Old School Stillhouse Lane Bedminster Bristol BS3 4EB Tel: 0117 947 1000 Fax: 0117 947 1004 ask@soils.co.uk www.soils.co.uk						London and Metropolitan International Developments LTD	
						PROJECT	
						Bicester Business Park	
						TITLE	
						EXPLORATORY HOLE LOCATION PLAN	
00	29.01.2014	-	MW	WH	-	JOB NO.	SCALE BAR
REV.	DATE	DESCRIPTION	BY	CHD.	APR.	728724	Not To Scale
DIMENSION		SCALE	DRAWING STATUS			ORIGIN SIZE	FIGURE
m		NTS	-			A4	2



	Borehole
	Trial Pit

<b>EXPLORATORY HOLE LOCATION PLAN</b>				
<b>Structural Soils Limited</b> The Old School Stillhouse Lane Bedminster BS3 4EB	Site	Job no.		
	7RWG - Whitelands Farm Oxford Road FAS Diversion, Bicester	721026		
		Drawing no.		2
		Date		Feb-08
	Client	Drawn by		
	Thames Water Utilities Ltd	TB		



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# ES Volume II: Technical Appendices

## Appendix 13.2: Legislative and Planning Policy Context

# 1 Appendix 13.2 – Policy review

## 1.1 National Policy

### National Planning Policy Framework (NPPF)

Allocation and planning of development must be considered against a risk-based framework, as provided by the National Planning Policy Framework. In terms of fluvial flooding, the guidance categorises flood zones in three principal levels of risk as follows:

- Flood Zone 1: Low Probability (<0.1% annual probability of flooding)
- Flood Zone 2: Medium Probability (0.1% - 1.0% annual probability of flooding)
- Flood Zone 3a / 3b: High Probability (>1.0% annual probability of flooding)

According to the NPPF guidance, residential development at the proposed site (designated as 'more vulnerable') should lie outside the envelope of the predicted 1 in 100 year (1%) flood zone, with preference given to sites lying outside the 1 in 1,000 (0.1%) year event and within Flood Zone 1.

Areas with the potential to flood during a 1 in 100 (1%) year flood event (Flood Zone 3a) are not normally considered appropriate for residential development unless on application of the "Sequential Test", the site is demonstrated to be the most appropriate for development and satisfactory flood mitigation can be provided. Additionally, 'more vulnerable' development or 'essential infrastructure' proposed within Flood Zone 3a are required to pass the "Exception Test". These tests are described further in the Flood Risk Assessment (Appendix 13.2).

### Water Framework Directive (WFD)

To improve the quality of water bodies, European legislation known as the Water Framework Directive (WFD) has been translated into national policy to promote a common approach to water management through river basin planning. One aim of the WFD is to improve the chemical and ecological statuses of fluvial and coastal waters and to prevent further deterioration.

## 1.2 Regional Policy

### Environment Agency River Basin Management Plan: Thames River Basin District 2016-21 (EA, 2016)

Prepared by the Environment Agency (EA) in conjunction with wider stakeholders, the Environment Agency River Basin Management Plan aims to protect and improve the water environment and will inform planning decisions and policy making. The intention is for all water bodies to achieve good status as defined by the European Water Framework Directive (WFD). The plan is updated every six years.

## 1.3 Local Policy

### Cherwell District Council and West Oxfordshire District Council: Level 1 Strategic Flood Risk Assessment (2009)

To support local planning policy, NPPF guidance recommends that local planning authorities produce a Strategic Flood Risk Assessment (SFRA). The SFRA should be used to help define the Local Development Framework and associated policies. It should consider potential development zones in the context of the sequential test defined in the guidance.

Cherwell district council and West Oxfordshire District Council published a Level 1 SFRA in 2009. The document outlines the results of a review of available flood risk related policy and data across the region and sets out recommendations and guidance in terms of flood risk and drainage policy that underpins national guidance.

### Cherwell Local Plan 2011-2031

Cherwell Local Plan 2011-2031 – The Cherwell Local Plan 2011 – 2031 has been produced by Cherwell District Council (CDC) and sets out how the guiding policies and vision for how CDC will grow and develop in the period up to 2031. A number of policies are relevant to water resources and have been considered in this chapter. These include:

#### Policy ESD 1: Mitigating and Adapting to Climate Change

Measures will be taken to mitigate the impact of development within the District on climate change. At a strategic level, this will include:

- Designing developments to reduce carbon emissions and use resources more efficiently, including water;

The incorporation of suitable adaptation measures in new development to ensure that development is more resilient to climate change impacts will include consideration of the following:

- Taking into account the known physical and environmental constraints when identifying locations for development
- Minimising the risk of flooding and making use of sustainable drainage methods
- Reducing the effects of development on the microclimate (through the provision of green infrastructure including open space and water, planting, and green roofs).

#### Policy ESD 6: Sustainable Flood Risk Management

The Council will manage and reduce flood risk in the District through using a sequential approach to development; locating vulnerable developments in areas at lower risk of flooding. Development proposals will be assessed according to the sequential approach and where necessary the exceptions test as set out in the NPPF and NPPG. Development will only be permitted in areas of flood risk when there are no reasonably available sites in areas of lower flood risk and the benefits of the development outweigh the risks from flooding.

In addition to safeguarding floodplains from development, opportunities will be sought to restore natural river flows and floodplains, increasing their amenity and biodiversity value. Building over or culverting of watercourses should be avoided and the removal of existing culverts will be encouraged.

Existing flood defences will be protected from damaging development and where development is considered appropriate in areas protected by such defences it must allow for the maintenance and management of the defences and be designed to be resilient to flooding.

Site specific flood risk assessments will be required to accompany development proposals in the following situations:

- All development proposals located in flood zones 2 or 3
- Development proposals of 1 hectare or more located in flood zone 1
- Development sites located in an area known to have experienced flooding problems
- Development sites located within 9m of any watercourses.

Flood risk assessments should assess all sources of flood risk and demonstrate that:

- There will be no increase in surface water discharge rates or volumes during storm events up to and including the 1 in 100 year storm event with an allowance for climate change (the design storm event)
- Developments will not flood from surface water up to and including the design storm event or any surface water flooding beyond the 1 in 30 year storm event, up to and including the design storm event will be safely contained on site.

Development should be safe and remain operational (where necessary) and proposals should demonstrate that surface water will be managed effectively on site and that the development will not increase flood risk elsewhere, including sewer flooding.

#### Policy ESD 7: Sustainable Drainage Systems (SuDS)

All development will be required to use sustainable drainage systems (SuDS) for the management of surface water run-off.

Where site specific Flood Risk Assessments are required in association with development proposals, they should be used to determine how SuDS can be used on particular sites and to design appropriate systems.

In considering SuDS solutions, the need to protect ground water quality must be taken into account, especially where infiltration techniques are proposed. Where possible, SuDS should seek to reduce flood risk, reduce pollution and provide landscape and wildlife benefits. SuDS will require the approval of Oxfordshire County Council as LLFA and SuDS Approval Body, and proposals must include an agreement on the future management, maintenance and replacement of the SuDS features.

#### Policy ESD 8: Water Resources

The Council will seek to maintain water quality, ensure adequate water resources and promote sustainability in water use.

Water quality will be maintained and enhanced by avoiding adverse effects of development on the water environment. Development proposals which would adversely affect the water quality of surface or underground water bodies, including rivers, canals, lakes and reservoirs, as a result of directly attributable factors, will not be permitted.

Development will only be permitted where adequate water resources exist, or can be provided without detriment to existing uses. Where appropriate, phasing of development will be used to enable the relevant water infrastructure to be put in place in advance of development commencing.

#### Policy ESD 10: Protection and Enhancement of Biodiversity and the Natural Environment

Protection and enhancement of biodiversity and the natural environment will be achieved by the following:

- In considering proposals for development, a net gain in biodiversity will be sought by protecting, managing, enhancing and extending existing resources, and by creating new resources
- If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or as a last resort, compensated for, then development will not be permitted.

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