

# Highfield Farm development, Tetbury

## Environmental Statement

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# 1. Introduction

## Proposed Development

- 1.1 Fay & Son Ltd, the applicants, propose to construct a scheme of residential development on land at Highfield Farm, Tetbury approximately 0.5 miles to the north of the town centre (see map at Figure 1.1). This site is located immediately adjacent to the existing development boundary of Tetbury as defined in the Cotswold District Local Plan, adopted April 2006.
- 1.2 It would comprise the following elements:
  - Residential development of approximately 250 units, comprised of a mix of detached/semi-detached two storey/three storey residential;
  - Other associated development including landscaping, access roads, a pumping station, an electricity substation and permanent footways.

## Application for Planning Permission

- 1.3 Outline planning permission for the Highfield Farm development is being sought by the applicant from Cotswold District Council (CDC). It is intended that subsequent applications will address detailed design matters.
- 1.4 Following pre-application discussions with Cotswold District Council the scope of this outline application is limited to addressing access, landscape and the general layout of development with all other matters reserved. It therefore seeks to establish the general principles of development in the form of a composite masterplan for the entire site. This would be on the basis that a follow-up application for full planning consent will be submitted shortly to address detailed design matters. This is on the understanding that the detailed planning application will need to be in conformity with the general principles of development established at this outline stage i.e. the approved composite masterplan.
- 1.5 This approach has involved the refinement of a detailed masterplan following extensive consultation over the development proposals and their required justification with the local planning authority and relevant statutory agencies.

## Environmental Impact Assessment

- 1.6 On behalf of the applicant, WPB Ltd (Planning Consultants) have led an Environmental Impact Assessment (EIA) and prepared this Environmental Statement (ES) to identify and report upon the potential for significant environmental effects occurring as a consequence of constructing a residential development scheme in this location, and the measures that will be put in place to avoid, reduce or mitigate for them. The ES is submitted to the CDC (along with the planning application) under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI No. 293) (as amended).

## Structure of the Environmental Statement

- 1.7 Following this introductory chapter, Chapter 2 provides a description of the EIA methodology used to assemble this ES. Chapter 3 provides an outline of the scoping process and consultation.
- 1.8 Chapter 4 describes the proposed development and outlines the main development alternatives studied by the applicant.
- 1.9 Chapter 5 describes the general construction methodology and includes those measures designed to avoid significant adverse effects on the environment.
- 1.10 Chapters 6 to 15 are those that assess the environmental effects of the proposed residential scheme. Each of them includes information on the baseline environmental conditions at the site and in the surrounding area. Based on this information, and coupled with a detailed knowledge of the proposed development, environmental effects are predicted. If required, mitigation measures are recommended. Chapters 6 to 15 cover the following environmental topics:
- Chapter 6 Landscape and Visual
  - Chapter 7 Ecology (Terrestrial & Aquatic)
  - Chapter 8 Surface Water, Hydrogeology Flood-risk and Drainage
  - Chapter 9 Access & Transportation
  - Chapter 10 Cultural Heritage
  - Chapter 11 Noise & Vibration
  - Chapter 12 Socio-economics
  - Chapter 13 Summary of Environmental Impacts
  - Chapter 14 Mitigation And Monitoring
- 1.11 A non-technical summary of the ES is included in the Environmental Statement and as a separate document.

## The Environmental Impact Assessment Team

- 1.12 The EIA has been coordinated by WPB (Bath), an environmental planning consultancy providing advice on the development of natural resources, land and property, and the management of the environment.
- 1.13 The following environmental consultants have provided specialist advice on the key environmental matters which have been addressed:
- Design and Access Statement, prepared by Ashley Design Associates LLP;
  - Draft S106 Head of Terms, prepared by Coffin Mew LLP
  - Transport Assessment and Travel Plan, prepared by FMW Ltd;
  - Flood Risk Assessment and Drainage Strategy, prepared by Fairhurst Ltd;

- Noise Assessment prepared by Fleming & Baron Ltd;
- Archaeological Evaluation prepared by Cotswold Archaeology;
- Contamination Desk Study Report, prepared by Fairhurst Ltd (TBS);
- Landscape and Visual Assessment, prepared by LanDesign Associates
- Ecological Appraisal, (Phase 1 & Phase 2) prepared by Ecosullis Consulting Ltd; and
- Arboricultural Supporting Information, prepared by Tree Maintenance Ltd

## Further Information

- 1.14 A Non-Technical Summary (NTS) document has been produced which briefly describes the project, its location and environmental effects. Copies of the ES, including the NTS, can be viewed at the local planning authority offices.
- 1.15 The address of the local planning authority is: Cotswold District Council, Trinity Road, Cirencester, Gloucestershire, GL7 1PX.
- 1.16 The NTS can be downloaded free of charge from <http://www.hfdevelopment.co.uk/> Further copies of this ES are available at a cost of £150 from WPB Ltd and can be requested by post to WPB House 143a Calton Road, Bath. BA2 4PP or by email to [mail@wpb-bath.co.uk](mailto:mail@wpb-bath.co.uk)

## Summary

- 1.17 In accordance with the Regional Spatial Strategy draft housing growth targets (GOSW, 2008), local planning authorities in the south west of England must increase the provision of housing on suitable sites. Planning permission is being sought for new development at Highfield Farm which would be located 0.5m to the north of Tetbury, Gloucestershire. This residential scheme would contribute to the provision of housing within the next two years.
- 1.18 This Environmental Statement has been written by WPB Ltd and others. The first five chapters of this ES outline the methodology, and describe the operation and construction of the proposed development. The subsequent chapters assess a range of environmental topics that were identified in a scoping exercise undertaken by WPB in November 2009.

## 2. EIA Legislation and General Methodology

### Introduction

- 2.1 This chapter documents the following elements of the Highfield Farm Environmental Statement:
- The legislation underpinning EIA in both a European and UK context, and
  - The general methodology adopted throughout the EIA, for example adoption of a consistent approach to describing baseline environmental conditions, assessing potential environmental effects and recommending mitigation measures where required.

### The EIA Directive

- 2.2 The legislative framework for EIA is set by European Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 97/11/EC and Directive 2003/35/EC. Collectively, this is known as ‘the EIA Directive’. The EIA Directive is concerned with ensuring that the likely environmental effects of proposed major development projects are considered thoroughly in order to inform the ‘development consent’ process.

### The EIA Regulations 1999

- 2.3 Because the UK has a number of different ‘development consent’ regimes for different types of project, the EIA Directive has been implemented into UK law through a number of Statutory Instruments. In the case of the proposed Highfield Farm, development, consent is being sought through a planning application to Cotswold District Council (CDC), the local planning authority. The Statutory Instrument implementing the EIA Directive for the purposes of planning applications, and under which this ES is submitted, is the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI No. 293) (as amended). These Regulations are referred to in this ES as the ‘EIA Regulations 1999’.

### Determining the Need (or Otherwise) for EIA – ‘Screening’

- 2.4 In determining the need (or otherwise) for EIA for a particular project, the EIA Regulations 1999 set out two schedules of development projects:
- Schedule 1, where EIA is required in every case; and
  - Schedule 2, where EIA is required if the development is likely to have significant effects on the environment by virtue of factors such as its nature, size or location. A formal

judgement (a 'screening opinion') on the need (or otherwise) for EIA for a Schedule 2 project can be obtained from the local planning authority under Regulation 5, but this is an optional process.

- 2.5 There is no category within Schedule 1 of the EIA Regulations 1999 for infrastructure developments.
- 2.6 The proposals at Highfield Farm fall under Schedule 2 (1)(ii): "*Infrastructure Projects*". The development exceeds the threshold stated in Column 2 of Schedule 2 and the site is within "a sensitive area", (Cotswold AONB). Because of this, the question of whether the development is likely to have significant effects on the environment by virtue of its nature, size and location must be asked in order to determine whether or not EIA is required. The applicant and CDC considered that due to its significant visual effects the proposed residential development constituted 'EIA development' and as such an Environmental Statement (ES) would accompany the planning application. A formal screening opinion under Regulation 7 of the EIA Regulations 1999 was provided by Cotswold District Council dated 12 October 2009 (See attached POAN).

## Content of an Environmental Statement

- 2.7 The EIA Regulations 1999 (Regulation 2(1)) define an 'Environmental Statement' as a statement:
- (a) *"that includes such of the information referred to in Part I of Schedule 4 as is reasonably required to assess the environmental effects of the development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile, but;*
- (b) *"that includes at least the information referred to in Part II of Schedule 4;"*
- 2.8 Table 2.1 identifies the requirements of Schedule 4, Parts I and II, and where this information is provided within the ES.

**Table 2.1 Requirements of the EIA Regulations 1999 as to the Content of an Environmental Statement**

EIA Regulations 1999: Schedule 4, Part I	Location within this ES
<p>1. Description of the development, including in particular -</p> <p>(a) a description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases;</p> <p>(b) a description of the main characteristics of the production processes, for instance, nature and quality of the materials used; and</p> <p>(c) an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.</p>	Chapter 4: Description of the Proposed Development.
<p>2. An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.</p> <p>3. A description of the aspects of the environment likely to be significantly affected by the development, including, in particular,</p>	Chapter 4: Alternatives section. Chapters 6 to 15

## 2. EIA Legislation and General Methodology

<b>EIA Regulations 1999: Schedule 4, Part I</b>	<b>Location within this ES</b>
<i>population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the interrelationship between the above factors.</i>	
<b>EIA Regulations 1999: Schedule 4, Part I</b>	<b>Location within this ES</b>
<i>4. A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from – (a) the existence of the development; (b) the use of natural resources; (c) the emission of pollutants, the creation of nuisances and the elimination of waste, and the description by the applicant of the forecasting methods used to assess the effects on the environment.</i>	Chapters 6 to 15.
<i>5. A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.</i>	The mitigation sections of Chapters 6 to 15 include the information required. These are also listed in Chapters 4 and 5.
<i>6. A non-technical summary of the information provided under paragraphs 1 to 5 of this Part.</i>	This is provided as a separate document.
<i>7. An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.</i>	Any difficulties encountered are detailed in Chapters 6 to 15.
<b>EIA Regulations 1999: Schedule 4, Part II</b>	<b>Location within this ES</b>
<i>1. A description of the development comprising information on the site, design and size of the development.</i>	Chapter 4: Description of the Proposed Development.
<i>2. A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.</i>	The mitigation sections of Chapters 6 to 15.
<i>3. The data required to identify and assess the main effects which the development is likely to have on the environment.</i>	The baseline environment sections of Chapters 6 to 15. Some data is included in appendices.
<i>4. An outline of the main alternatives studied by the applicant and an indication of the main reasons for his choice, taking into account the environmental effects.</i>	Chapter 4: Alternatives section.
<b>EIA Regulations 1999: Schedule 4, Part I</b>	<b>Location within this ES</b>
<i>5. A non-technical summary of the information provided under paragraphs 1 to 4 of this Part.</i>	This is provided as a separate document.

## General EIA Methodology

### Government Guidance Documents

- 2.9 Guidance on implementing the UK's EIA Regulations is provided in DETR Circular 02/99 Environmental Impact Assessment and also in the DETR's Environmental Impact Assessment: A Guide to the Procedures, 2000. This general guidance has been taken into account in undertaking the EIA.
- 2.10 In June 2006, the Department for Communities and Local Government published proposed amendments to DETR Circular 02/99 and the EIA Guide to Procedures of 2000 for consultation. These have also been taken into account.
- 2.11 Between June and September 2006 the UK Government consulted on draft updated versions of the above documents. These are being updated to reflect, *inter alia*, the lessons derived from the large amount of EIA case law that has arisen in the preceding six or seven years, and also the ongoing development of EIA as a professional discipline. Although it is acknowledged that they are in draft form, these documents have nevertheless been reviewed and lessons drawn where appropriate
- 2.12 The DoE's guidance of 1995, Preparation of Environmental Statements for Planning projects that Require Environmental Assessment, which includes guidance on specific topics, has also been used.

### Other Guidance Documents and Standards

- 2.13 Each ES Chapter examining the key environmental issues, namely Chapters 6 to 15 inclusive, draws on a number of guidance documents and / or standards, and references to these are cited within the individual chapters.

## Scope of EIA

### What is Scoping?

- 2.14 Scoping is the process of identifying the issues to be addressed in the EIA. It aims to focus the EIA on the likely significant environmental effects that require further attention, whilst determining the effects that are unlikely to require additional study. Government Circular 2/99 (Department of the Environment, Transport and the Regions, 1999) acknowledges at paragraph 82 that the role of EIA is to examine "*the main or significant effects to which a development is likely to give rise*". The scoping of an EIA by which these main or significant effects are identified is, therefore, an important preliminary procedure that sets the context for the study. Indeed, guidance produced by the Environment Agency (2002) states: "*Scoping is a critical stage early in the EIA process. It provides an opportunity for developers and their consultants to identify and assess the key environmental impacts and issues of concern, facilitated by thorough consultation with, amongst others, planners, statutory and non-statutory consultees, non-governmental organisations (NGOs) and the public.*"

### Formulation of Scope

- 2.15 The proposed EIA scope was formulated based on desk-based and field-based knowledge of the site and prior experience of other residential development EIAs. Details of the scoping process for the project are discussed in Chapter 3 Scoping and Consultation.

### Approach to Assessment

- 2.16 The assessment of each environmental topic forms a separate section of the ES. For each environmental topic, the following are addressed:
- Methodology and assessment criteria;
  - Description of the environmental baseline (existing conditions);
  - Identification of likely effects;
  - Evaluation and assessment of the significance of identified effects, taking into account any measures designed to reduce or avoid environmental effects which form part of the project and to which the developer is committed;
  - Identification of any further mitigation measures envisaged to avoid, reduce and, if possible, remedy adverse effects (in addition to those measures that form part of the project).

### Methodology and Assessment Criteria

- 2.17 The general environmental assessment methodology is set out in the subsequent sections of this chapter. Each environmental topic has been considered by a specialist in that area, such that subsequent chapters define the scope of the assessment in more detail. Identification and evaluation of effects has been based on the description of the project provided in Chapter 4, (together with information on construction provided in Chapter 5), and follows relevant topic specific best practice guidance where available and appropriate. In the absence of a specific methodology for a particular discipline a standardised approach, as set out in the paragraphs below, is used.

### Description of the Environmental Baseline

- 2.18 Each topic based chapter includes a description of the current, (baseline), environmental conditions. The study area varies according to the type of effect under consideration. The approach taken to baseline studies for each topic is made clear within each chapter.

### Assessment of Effects

- 2.19 The EIA Regulations require the identification of the main and likely significant effects which the project is likely to have on the environment. The process by which effects are identified and their significance evaluated is set out below.

## Sensitivity or Importance of Receptors

- 2.20 Receptors are defined as the physical resource or user group that could be affected by the project or part of the project throughout its construction or operation. Some receptors will be more sensitive to certain environmental effects than others. The sensitivity or importance of a receptor may depend, for example, on its frequency or extent of occurrence at an international, national, regional or local level.

## Description of Effect

- 2.21 Effects are defined as the physical changes to the environment attributable to the project. For each topic, the likely environmental effects are identified and taken into account, including their magnitude and other dimensions of identified change in the environment with the project by comparison with the situation without the project.
- 2.22 Effects are defined as either adverse or beneficial. Depending on discipline, they may also be described as:
- Direct: effects directly attributable to a project action/activity;
  - Indirect: effects not directly attributable to a project action/activity;
- 2.23 Effects are divided into those occurring during the construction phase and those occurring during operation. Where appropriate, some chapters refer to these as temporary and permanent effects.

## Significance of Effects

- 2.24 The magnitude of an effect does not directly translate into its significance. For example, a significant effect may arise as a result of a relatively modest effect on a resource of national value, or a large effect on a resource of local value. In broad terms, therefore, the significance of the effect can depend on both its magnitude and the sensitivity or importance of the receptor.
- 2.25 The significance of an effect has generally taken account the following criteria:
- Extent and magnitude;
  - Duration (short-term and long-term);
  - Reversibility and irreversibility;
  - Performance against environmental quality standards; and
  - Sensitivity of the receptor.
- 2.26 Levels of significance that are used in the assessment, in descending order, are:
- Substantial;
  - Major;
  - Moderate;
  - Minor;

- Negligible.

2.27 Where an effect is described as 'negligible' this means that there is either no effect or that the significance of any effect is considered to be negligible. All other levels of significance apply to both adverse and beneficial effects. These significance levels are defined separately for each topic within the methodology sections. The consideration of what effects are significant in EIA terms varies between disciplines and in all cases, the judgement made as to significance is that of the author of the relevant chapter with reference to appropriate standards/guidelines where relevant.

### Mitigation Measures

- 2.28 The project includes a range of committed measures that have been designed to reduce or prevent significant adverse environmental effects arising. The assessment of effects has taken into account all measures that form part of the project and to which the applicant is committed. These are listed in chapters 4 and 5.
- 2.29 In a few cases it has been considered desirable to identify what have been described as 'further mitigation' measures. These are measures recommended by the author that could further prevent, reduce and where possible offset any adverse effects on the environment but are not part of the committed mitigation agreed with the applicant and therefore not part of the assessed project. The assessed project is that which is described in chapter 4.

### Inter-relationships between Topics

- 2.30 Inter-relationships between topics can arise that lead to environmental effects. For example, changes in traffic flows may lead to changes in local air quality and noise. Where relevant, these have been identified within individual chapters.

### Other Developments and Cumulative Effects

- 2.31 The effects of the project together with other developments planned in the area have been considered in each topic chapter. Information on other developments in the area has been obtained from Cotswold District Council.
- 2.32 It is standard for the cumulative effects assessment to include those developments that have planning permission, those where applications have been submitted and are considered likely to be approved in the near future and other projects planned in the area. The extension of the existing Tesco store on London Road, Tetbury was approved over three years ago. The applicants for this application are now seeking renewal of the planning permission.
- 2.33 The proposed site is on land to the north and east adjacent to the site (see figure 2.1). The proposed scheme includes the review and enhancement of the existing store and the redevelopment of the existing petrol station.
- 2.34 A final decision on the Tesco London Road, Tetbury planning application was expected by early 2011 however no decision had been made at the timing of writing this ES.

## Proposed Iron Working Plant, Tetbury

- 2.35 The proposed location of Iron Working Plant is shown in figure 2.2. The proposed site has the potential for heavy industrial working. SIAC Tetbury Steel has however informed the proponents of the Highfield Farm site that all manufacturing operations have been suspended for the foreseeable future and that at present only the offices are operational..
- 2.36 As the proposed Iron Works site is within 5km of the proposed Highfield Farm development site the potential cumulative acoustic effects of the proposed Iron Works site and Highfield Farm are assessed in this statement.

## Summary

- 2.37 This Environmental Statement is the result of the environmental impact assessment (EIA) process as enshrined in the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI No. 293) (as amended). EIA guidance and standards have been used to ensure best practice and the local authority, Cotswold District Council, and their consultees have been involved in defining the scope of the EIA.

## References

- *Department for Communities and Local Government (2006) Amended Circular on Environmental Impact Assessment. A Consultation Paper. Department for Communities and Local Government (2006) Environmental Impact Assessment: A guide to good practice and procedures. A Consultation Paper.*
- *Department of the Environment, Transport and the Regions (DETR) (1999)*
- *Circular 2/99: Environmental Impact Assessment.*
- *DETR and the National Assembly for Wales (2000) Environmental Impact Assessment: A Guide To Procedures.*
- *Environment Agency (2002) Environmental Impact Assessment: A Handbook for Scoping Projects.*
- *Tetbury v.2 EA Chapter 2 ngw 07/01/10*

# 3. Scoping and Consultation

## Introduction

- 3.1 This Chapter outlines all consultation for the project both through the EIA process of Scoping in Section A and with the public and other stakeholders in Section B.
- 3.2 A planning application for a residential scheme on the Highfield Farm site was submitted in April 2010.
- 3.3 Chapter 6 to 15 address the assessment of specific environmental topics and detail the individual consultation process carried out in the context of the outline development proposals.

## Section A: Scoping

- 3.4 This section provides information on the scoping process that has set the scope of assessment for the EIA. This process commenced in October 2009 following discussions with Cotswold District Council over a residential scheme of development and the scope of the associated assessment. Following public consultation assessments have been expanded in some areas in order to respond to concerns or queries raised by consultees. These are detailed in the individual topic chapters 6 to 23.

## Consultation and Agreement of Scope

- 3.5 Although there is no formal requirement in the EIA Regulations 1999 to produce a Scoping Report prior to an ES, current draft Government guidance (Department for Communities and Local Government, 2006) acknowledges at paragraph 98 that: *“It is good practice for the developer to submit a Scoping Report with the scoping request.”* Such a report was prepared by WPB and submitted on behalf of the applicant in October 2009. The objectives of the Scoping Report submitted in October 2009 to CDC were as follows:
  - To identify potential environmental issues associated with the proposed development;
  - To provide a basis for related engagement/consultation, where appropriate, with statutory and non-statutory consultees on the relevant environmental issues;
  - To define what methods will be used to assess the environmental effects of the proposed development; and
  - To obtain a Scoping Opinion (Planning Officer Advice Note) from the local planning authority to formalise the above.
- 3.6 Following submission of draft details to CDC in October 2009, (see Appendix 3.1), CDC provided its Planning Officer Advice Note, (POAN), to WPB on the 20th of October 2009 under Regulation 10 of the EIA Regulations 1999 (see Appendix 3.2).

- 3.7 In addition to the above, input to the EIA process has been received through consultation with, or provision of, information from a number of other organisations. These consultations are outlined in Chapters 6 to 15.
- 3.8 Details of proposed EA Scoping were also sent to:
- Natural England;
  - Gloucestershire Wildlife Trust;
  - English Heritage;
  - The Environment Agency;
  - Gloucestershire County Archaeologist;
  - Gloucestershire County Council as Highways Authority;
  - Wessex Water.
- 3.9 The scoping process has involved all CDC's statutory consultees.
- 3.10 In general the proposed EIA scope was accepted by CDC, but key additional points raised by CDC and their statutory consultees, and agreed to by the applicant, are listed below in Table 3.1.

**Table 3.1 Points raised in the Scoping Opinion**

Points raised	How points raised have been taken account of in ES
<p><b>Landscape and Design:</b> confirmed requirement to include visual assessment to take account of AONB and wider landscape setting Consider onsite opportunities for enhancement without loss of significant trees. Investigate opportunities to enhance main approach to Tetbury given frontage of application site.</p>	<p>Baseline Assessment undertaken to review visual context and opportunities for preservation and enhancement both onsite and offsite. Arboricultural survey highlighting opportunity to create site access without loss of significant trees. Provision of details of London Road frontage and treatment of visual setting of Highfield Farm.</p>
<p><b>Flooding:</b> Need to liaise with statutory consultees given requirement for FRA.</p>	<p>Following liaison with EA following baseline assessment to review geological and flood risk context, existing localized problems and opportunities for enhancement both onsite and offsite.</p>
<p><b>Ecology:</b> Need to liaise with CDC over follow-up surveys and the working assumptions given seasonal restrictions over surveys in the light of findings of preliminary Phase 1 assessment.</p>	<p>Following liaison with CDC Biodiversity Officer and Natural England over scoping of baseline assessment and need to review opportunities for enhancement both onsite and offsite.</p>
<p><b>Heritage</b> Need to consider extending the visual setting of Highfield Farmhouse (LB) Need to Liaison with EH following baseline assessment to review geological and flood risk context, existing localized problems and opportunities for enhancement both onsite and offsite.</p>	<p>Following liaison with CDC Officers increase setting and open vista of Highfield Farmhouse baseline assessment to address highlighted matters. Revision of the proposals to take account of matters highlighted.</p>

### 3. Scoping and Consultation

Points raised	How points raised have been taken account of in ES
<p><b>Transport</b> : Provide new link off existing London Road Roundabout. Need to consider opportunity for new link road to SWR School via application site? Detailed input to scoping of Transportation Assessment. Opportunity for vehicular connection to Northlands Way?</p>	<p>Agreed following liaison with GCC/CDC. Liaison with SWR School representatives and GCC over opportunity to preserve option for new link road to SWR School via application site after connection as part of the application was dismissed following GCC comments. Following liaison with GCC/CDC. Dismissed in favour of pedestrian/cycleway connection following local resident objections.</p>
<p><b>Community</b>: Undertake community engagement over the local requirements. Undertake consultation with Education Officer over the local requirements. Undertake consultation with Housing Officer over Policy 21 requirements.</p>	<p>Exhibition of draft proposals/Investigation of potential community uses including allotments. Questionnaire of S106 community aspirations. Liaison with GCC representatives over provision of intake to SWR School and local primary places. Review of Local Housing Needs Survey.</p>

- 3.11 Follow-up meetings were held with CDC in December 2009 & March 2010 to discuss the proposed residential scheme and the Councils recommended course of action and these were attended by CDC Planning Officers, the applicant's appointed consultants including Ecosullis, LDA & WPB.
- 3.12 Relevant comments of CDC, and the way in which they have been addressed in this ES, are presented in Table 3.2 below. All of the points raised by CDC have been acted upon for the purposes of this EIA, regardless of whether they were raised more formally in the POAN or less formally in the follow-up meetings.

**Table 3.2 Points raised in Follow-up Meetings over Scoping/Proposed Scheme**

The Scoping Report to be adopted, subject to the following comments	How points raised have been taken account of in ES
<p><b>Landscape and Design</b>: confirmed requirement to include visual assessment to take account of AONB and wider landscape setting Agreed that measures to Consider onsite opportunities for enhancement without loss of significant trees. Investigate opportunities to enhance main approach to Tetbury given frontage of application site.</p>	<p>Baseline Assessment undertaken to review visual context and opportunities for preservation and enhancement both onsite and offsite. Arboricultural survey highlighting opportunity to create site access without loss of significant trees Provision of details of London Road frontage and treatment of visual setting of Highfield Farm</p>
<p><b>Flooding</b>: Need to liaise with statutory consultees given requirement for FRA</p>	<p>Following liaison with EA following baseline assessment to review geological and flood risk context, existing localized problems and opportunities for enhancement both onsite and offsite.</p>
<p><b>Ecology</b>: Need to liaise with CDC over follow-up surveys and the working assumptions given seasonal restrictions over surveys in the light of findings of preliminary Phase 1 assessment</p>	<p>Following liaison with CDC Biodiversity Officer and Natural England over scoping of baseline assessment and need to review opportunities for enhancement both onsite and offsite.</p>

The Scoping Report to be adopted, subject to the following comments	How points raised have been taken account of in ES
<b>Heritage</b> Need to consider extending the visual setting of Highfield Farmhouse (LB) Need to Liaison with EH following baseline assessment to review geological and flood risk context, existing localized problems and opportunities for enhancement both onsite and offsite.	Following liaison with CDC Officers increase setting and open vista of Highfield Farmhouse baseline assessment to address highlighted matters. Revision of the proposals to take account of matters highlighted.
<b>Transport</b> : Need to consider opportunity for new link road to SWR School via application site. Detailed input to scoping of Transportation Assessment	Liaison with SWR School representatives and GCC over opportunity for new link road to SWR School via application site. Following liaison with GCC/CDC
<b>Community:</b> Undertake community engagement over the local requirements Undertake consultation with Education Officer over the local requirements Undertake consultation with Housing Officer over Policy 21 requirements	Exhibition of draft proposals Investigation of potential community uses Questionnaire of S106 community aspirations

- 3.13 Following the pre-application consultation meeting with CDC the Applicant and WPB met with Gloucestershire County Council (GCC) on 22 October 2009 in order to introduce the scheme. The points raised by GCC are outlined in Table 3.3 below and how they have been acted upon for the purposes of this EIA is set out.

**Table 3.3 Points raised in CDC Meeting**

The Scoping Report to be adopted, subject to the following comments	How points raised have been taken account of in ES
<b>Landscape and Design:</b> confirmed requirement to include visual assessment to take account of AONB and wider landscape setting Consider onsite opportunities for enhancement without loss of significant trees. Investigate opportunities to enhance main approach to Tetbury given frontage of application site. Provide sufficient detail of landscape measures at this stage to demonstrate its suitability for residential uses given that it can be integrated within its landscape and wider context (AONB/Listed building/LR Frontage/adjacent to existing housing).	Baseline Assessment undertaken to review visual context and opportunities for preservation and enhancement both onsite and offsite. Arboricultural survey highlighting opportunity to create site access without loss of significant trees Provision of details of London Road frontage and treatment of visual setting of Highfield Farm
<b>Flooding:</b> Need to liaise with statutory consultees given requirement for FRA	Following liaison with EA following baseline assessment to review geological and flood risk context, existing localized problems and opportunities for enhancement both onsite and offsite.

### 3. Scoping and Consultation

The Scoping Report to be adopted, subject to the following comments	How points raised have been taken account of in ES
<p><b>Ecology:</b> Need to liaise with CDC over follow-up surveys and the working assumptions given seasonal restrictions over surveys in the light of findings of preliminary Phase 1 assessment</p>	<p>Following liaison with CDC Biodiversity Officer and Natural England over scoping of baseline assessment and need to review opportunities for enhancement both onsite and offsite.</p>
<p><b>Heritage</b> Need to consider extending the visual setting of Highfield Farmhouse (LB) Need to Liaison with EH following baseline assessment to review geological and flood risk context, existing localized problems and opportunities for enhancement both onsite and offsite.</p>	<p>Following liaison with CDC Officers increase setting and open vista of Highfield Farmhouse baseline assessment to address highlighted matters. Revision of the proposals to take account of matters highlighted.</p>
<p><b>Transport</b> : Need to consider opportunity for new link road to SWR School via application site. Detailed input to scoping of Transportation Assessment</p>	<p>Liaison with SWR School representatives and GCC over opportunity for new link road to SWR School via application site. Following liaison with GCC/CDC</p>
<p><b>Community:</b> Undertake community engagement over the local requirements Undertake consultation with Education Officer over the local requirements Undertake consultation with Housing Officer over Policy 21 requirements</p>	<p>Exhibition of draft proposals Investigation of potential community uses Questionnaire of S106 community aspirations</p>

## Section B: Public and Stakeholder Consultation

- 3.14 This section provides information on the public and stakeholder consultation process.
- 3.15 Prior to the submission of this outline planning application, comprehensive consultation took place. The applicant identified the key local stakeholder groups that would be most affected by the proposed development. These included local residents and businesses and organisations such as Tetbury Upton Parish Council, Tetbury Town Council, Tetbury Feofees, Tetbury Chamber of Commerce, Tetbury & District Civic Society, and History of Tetbury Society.
- 3.16 Prior to the submission of the formal outline planning application, the general public were able to respond informally to the for the residential scheme by questionnaire and an interactive website. A total of just over 700 letters were received by WPB and logged on the website by 25 March 2010. Of these 700 letters the majority showed support for the residential scheme.
- 3.17 A public exhibition was held on Monday 4<sup>th</sup> November 2010 at Sir William Romney School, Lowfield Road, Tetbury. A specific member briefing was given to representatives of Gloucester County, Cotswold District, Tetbury Upton and Tetbury Town Council at 5.00pm. The exhibition was open for public viewing between 5.30pm and 8.00pm on the same day.
- 3.18 A micro consultation zone was identified from the earlier exhibition as being those residents who live within the closest proximity to the proposed residential. This group had particular site specific concerns compared to residents within the wider consultation zone. Therefore, this

stakeholder group received an invitation to attend a private viewing of the residential scheme exhibition. This allowed the applicant and environmental consultants to spend more time with this key stakeholder group.

- 3.19 A second public exhibition was held at Dolphins Hall, Tetbury. The exhibition was open for public viewing between 5.00pm and 8.00pm on the same day.
- 3.20 A meeting with Tetbury Upton Parish Council was held on 8 March 2010. A meeting with Tetbury Town Council was held on 19 April 2010.
- 3.21 For the duration of the public and stakeholder consultation a telephone number/email address and postal address was provided. Following the second public exhibition in February 2010; an interactive website [www.hfdevelopment.co.uk/](http://www.hfdevelopment.co.uk/) was available to allow for a two-way communication between the applicant and the stakeholder groups.
- 3.22 A description of the public consultation process and its findings is outlined in detail in the Statement of Community Consultation (SCC) appending the planning application.

## Summary

- 3.23 CDC provided a Scoping Opinion on 12 October 2009. Further meetings with CDC took place over the form and content of the planning application, including a scoping discussion on 9 April 2010. In addition to this, input to the EIA process was received by consultation with key stakeholders. Responses from statutory and non-statutory consultees to the proposed residential development scheme are summarised in the document submitted with this planning application: 'Review of Consultation responses – April 2010'. Chapter 6 to 15 include sub-sections titled 'Consultation' and within these sections the consultation process is explained and a response given to all queries.
- 3.24 Through public exhibitions, the project has been the subject of a public consultation programme and this process is documented in the Statement of Community Consultation (SCC) appending the planning application.

## References

- *Statement of Community Consultation, March 2010.*
- *Department for Communities and Local Government (2006) Environmental Impact*
- *Assessment: A guide to good practice and procedures. A Consultation Paper.*

# 4. Description of the Proposed Development/Alternatives

## Introduction

- 4.1 This chapter documents the following elements of the Highfield Farm Environmental Statement:

### Section 'A'

- Description of Proposed Development including a description of the physical characteristics of the whole development.

### Section 'B'

- The general approach adopted to define the preferred scheme of development, for example the consideration of alternative design options based upon environmental conditions, interaction with the assessment of potential environmental effects and recommending mitigation measures where required.

## Section 'A'

### Description of Proposed Development

#### Planning Application

- 4.2 Following pre-application discussions with Cotswold District Council and Gloucestershire County Council this proposal is submitted in outline with supporting details. As defined on related planning application forms, proposed means of access and landscaping are specifically detailed at this stage. (For more information see chapter 6 Landscape & Visual.)
- 4.3 Given the landscape context, the intended scale of development and the potential environmental impacts, an Environmental Impact Assessment has been prepared to accompany this planning application. The likely environmental effects of this proposed major development project are considered thoroughly in order to inform the 'development consent' process.
- 4.4 The proposed scheme of development would consist of a mix of residential units (two/three/four bedroom units) arranged around five development cells within the site. These core areas of development are shown on the attached masterplan for the site. No retail or non-residential uses are proposed at this stage given the proximity of the town centre.

4.5 Given the listing status of Highfield Farmhouse (Grade 2) and the associated setting to London Road, indicative details relating to the urban design approach to frontage units and associated landscape treatments are provided for consideration at this stage (See Chapter 12 Cultural Heritage). As discussed with representatives of Cotswold District Council and Gloucestershire County Council, it is intended that indicative details over the masterplanning and design parameters for future development would be taken forward for final consideration at the detailed application stage (See Chapter 1 Introduction).

4.6 London Road forms an important gateway to the town of Tetbury. Details of the urban design philosophy underlying our approach to the frontage properties along London Road are provided in Section 4.13.

Highway matters are detailed at this stage and have influenced the configuration of the overall masterplan. (See Chapter 11 Highways & transportation.)

The detailed design and arrangement of individual residential units is not detailed at this stage in the planning process. It is intended that proposed residential units would not exceed three storeys with bedrooms in roof spaces. Three storey units being restricted to the central core areas, other than some room in the roof units on the London Road frontage. Given the specific findings of the landscape and visual assessment of the application site, an exclusion zone of 20m is proposed to reduce the potential visual impacts of three storey units along the northern boundary of the site.

4.7 For the purposes of this Environmental Assessment the following working assumptions have had to be made.

- Bulk and massing;
- Frontage treatment of London Road;
- Setting of listed building;
- Extent of development.

### **Bulk and Massing**

The detailed design and arrangement of individual residential units is not detailed at this stage in the planning process. It is intended that proposed residential units would not exceed three storeys with bedrooms in roof spaces. Three storey units will be restricted to the central core areas, other than some room in the roof units on the London Road frontage. Given the specific findings of the landscape and visual assessment of the application site, an exclusion zone of 20m is proposed to reduce the potential visual impacts of three storey units along the northern boundary of the site.

### **Frontage treatment of London Road**

London Road forms an important gateway to the town of Tetbury. Details of the urban design philosophy underlying our approach to the frontage properties along London Road are provided in Section 4.13.

### **Setting of listed building**

Highfield Farm House is Listed Grade II its setting is therefore an important constraint. During early discussions with officers of Cotswold District Council it was agreed that an open vista to the farm house main frontage from the London Road should be maintained. Development on the North Eastern side of the initial length of the site access will frame the vista.

### **Extent of development**

Based upon the total site area of 8.92 hectares, known site constraints, ecology, heritage factors, landscape requirements a net developable area of 5.9 hectares has evolved. Taking into account opportunities and the likely residential densities which would be applied it is envisaged that the scale of proposed development would not exceed 250 residential units with associated landscaping, parking and servicing.

It is envisaged that an element of affordable housing would be provided. These units would be interspersed within the scheme of development and provided in a mix of tenures to meet the specific needs identified in the local Housing Needs Survey. Discussions over the provision of care home are also ongoing at the time of submission of this planning application. If approved this facility would be incorporated into the proposed scheme of development to cater for the specific housing needs of Tetbury.

A range of informal and formal recreation needs would also be provided.

## **Section 'B'**

### **The General Approach to Proposed Development**

#### **4.8 Philosophy/Underlying Assumptions**

The development will be designed in compliance with the 'Cotswold Design Code' which is supplementary planning guidance. The principles set out in the code will be followed in both layout and building design to reflect the distinctive Cotswold Style.

The building forms will be created to blend well into their surroundings without relying on imitation. The use of common materials and care in ensuring that the new buildings are harmonious with older buildings in Tetbury will ensure this. The latter particularly applies to the London Road frontage.

A modern interpretation of the Cotswold style will use appropriate scale, materials, colour, detailing and a high quality of workmanship will ensure it is acceptable.

The development will respect the setting of the listed building on the edge of the site and also the existing Cotswold features within the site.

Boundary treatments are to be carefully incorporated using traditional dry stone walls, railings, picket fences and traditional species hedges.

#### 4.9 Creating a Sustainable Development

### Key Considerations

The key aims for the development are to:

- Design a carefully considered and integrated scheme that reflects approach and commitment to the scheme.
- Create a distinctive sense of place and identity that reinforces local distinctiveness; and
- Provide a quality built environment that reflects best practice in sustainability.

The extent to which the submitted scheme is in accordance with guidance set out in the Cotswold Design Code, PPS3 (Housing) PPG15 (Planning & The Historic Environment) can be demonstrated as follows:

Within the site there will be proposals for a network of attractive, safe, well-lit pedestrian and cycle routes through the development, linking the site bus stops, play areas and schools. These routes will also feed into the town centre and local facilities.

The creation of individual residential areas, the retention of existing trees where possible, and the creation of a series of interlinked zones overlooking open spaces will ensure a high quality and safe environment. The development will also be designed to enhance the environment for landscape.

Place for people will result from high quality design and the creation of places with character and identity through carefully designed buildings and open spaces. The scheme will be traffic calmed giving priority to pedestrians and cyclists.

The vision for Highfield, Tetbury is to create an attractive and distinct sense of place and identity that reinforces local distinctiveness, while providing a quality built environment that reflects best practice in sustainability. The development will combine the rich urban fabric of the historic settlements in and around the Cotswolds, whilst responding to the setting and landscape meeting the needs of the 21<sup>st</sup> century.

### Potential Renewable Energy Targets

Sustainability is the single most important future trend affecting the construction industry, with buildings accounting for around 40% of the UK's total carbon emissions. For the UK to meet its pressing carbon reduction targets, the sector has to change the way it designs, builds domestic buildings

The aim is for the whole development to achieve Code 3 or better for Sustainable Homes. It is accepted that there limitations of achieving that in typical Cotswold construction, however sustainable renewable energy systems will be incorporated into all dwellings.

## 4. Description of the Proposed Development/Alternatives

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In order to produce the best possible ratings a range of options will be adopted dependant on building types. These will include air source heat pumps, PV slates, solar panels where appropriate, Biomass log burner effect stoves and rainwater harvesting.

### 4.10 Design Objectives

- a. Landscape and Open Space
- b. Permeability
- c. Space and Place
- d. Layout and Built Form
- e. Character and Identity
- f. Community and Life
- g. Sustainability and Efficiency
- h. Ecological Factors
- i. Conservation Setting

The implications of all these issues have been carefully considered through an illustrative master plan, particularly given the proximity to neighbouring developments and a listed building. This has been prepared in close collaboration with the County Highway Authority, District, Town and Parish Councils and the local community to address the broad design objectives.

The master plan has evolved through several versions taking into account consultations with the various authorities and local community. Each suggestion raised during the public consultation process has been considered as indicated by the attached plans. The options have been evaluated against the viability of the overall scheme. The Illustrative Masterplan is the result of the process of evaluation.

### Plans Attached in Appendix

**Initial Site Analysis Plan** 2440-02C This plan was tabled at meetings with CDC and at public consultation meetings. It shows in outline housing zones, areas of open space, possible links and existing site features.

**Option 'A'** 2440-10A showed a link road into the school site and possible internal footpath/cycle path links

**Option 'B'** 2440-11A showed a link road to Shepherds Mead, however the link to school site deleted as it could not be justified in terms of County Highways requirements based on exiting information.

**Option 'C'** 2440-12B Affordable housing areas indicated.

**Option 'D'** 2440-13A Possible Doctor's Surgery site indicated.

**Option 'E'** 2440-14 Possible Nursing Home site shown.

**Option 'F'** 2440-15 Possible Retirement Village site shown.

**Street Scene on London Road** 2440-20

**Site Layout Option 'B'** 2440-21 Showing indicative housing on southern boundary and Nursing Home.

**Site Layout Option 'C'** 2440-22 as option 'B' but with Retirement Village in lieu of Nursing Home.

**Site Layout Option 'D'** 2440-23 Showing indicative housing on southern boundary and Doctor's surgery.

**Site Layout Option 'E'** 2440-24 Showing affordable housing locations.

**Illustrative Masterplan** 2440-18B Showing Newt Mitigation Zone, Housing Zones, Key Frontage Development.

All the measures provided for in the master plan shall have been secured before planning permission for any of the residential development is given. The master plan has also incorporated archaeological, landscape, ecological, ground water, noise, pollution, surface water drainage and traffic impact assessments of the proposed development.

#### 4.11 The Code for Sustainable Homes

The generic definitions to be followed to achieve the necessary level of sustainable design are as follows:

- Category 1; Energy and Carbon Dioxide Emissions
- Category 2: Water
- Category 3: Materials
- Category 4: Surface Water Run-off
- Category 5: Waste
- Category 6: Pollution
- Category 7: Health & Wellbeing
- Category 8: Management
- Category 9: Ecology

#### 4.12 Lighting to Public Areas

The Cotswold Conservation Board document 'Landscape Strategy & Guidelines for Cotswold ANOB' refers to protection of existing 'dark skies' through planning control. This will be adopted as a principle aim in the lighting design scheme for the development.

Lighting will be restricted to roads and pathways with no lighting on the boundaries of the site. Directional lanterns will be employed to avoid light spillage into the surrounding countryside particularly on the northern boundary.

Street lighting lanterns and low level bollards will have non translucent tops to guard against upward light spillage to protect the 'dark skies'.

Traditional styles to reflect a less formal low key approach will be adopted. Where possible street lighting will be mounted on buildings to create a less cluttered public realm and will reflect the architectural style.

Pathways will be lit with low level bollards, in particular the new path behind the frontage wall on the London Road edge of the site.

All the above measures are aimed at protecting the 'Dark Skies' referred to in the first paragraph above.

##### 4.13 The London Road Frontage.

The quality of the overall scheme for the site will be judged by the design approach to this important gateway into the town of Tetbury.

It is felt that the vernacular architecture of the Cotswolds and of Tetbury itself must be expressed on this frontage. In particular materials, massing, scale and the principles set out in the Cotswold Design Code referred to in 4.8 will be adopted.

The design philosophy for this boundary is to produce a robust landscaped zone through which local vernacular elevations will be glimpsed. Also the creation of a sense of place and 'rightness' by taking into account the impact on public views into and out of the site. Local distinctiveness will result in the development sitting comfortably into its setting.

The existing boundary wall will be retained and refurbished along the whole site frontage. Most of the existing trees behind the wall will be retained apart from the conifers which will be replaced with Lime Trees, thus extending the Lime Avenue which is a feature of the approach to Tetbury.

Behind the tree belt a pathway will give pedestrian access to houses fronting the zone. A new dry stone wall will form the garden boundary to the frontage dwellings.

## Appendix 'A'

# 5. Construction

## Introduction

- 5.1 This chapter provides a brief description of the construction process for this residential scheme. This chapter describes the construction stages and activities as well as access arrangements. Committed mitigation for the construction stage is then listed.
- 5.2 The details provided here represent the way in which the applicant proposes to develop the site and the EIA is based on these details. Subsequent chapters take into account the basic construction methods described here, including those mitigation measures incorporated into the construction methodology to avoid and/or ameliorate significant environmental effects.

## Construction Methodology

- 5.3 The programme and construction information presented here have been prepared using experience from similar projects.
- 5.4 For the purpose of description, the development construction methodology can be broken down into various distinct operations. These operations are listed here in chronological order, to provide a description of the processes that would be used. However, on a construction site of this nature, it would not be unusual for several different operations to be carried out simultaneously in different locations.

## Pre-construction Works

- 5.5 A geotechnical investigation would be undertaken before the main construction activities commence. The results of which would inform detailed design for building foundations. The ground investigation would be undertaken as and when a programme for construction is fixed. The ground investigation will also inform detailed design and layout. This accords with guidance in PPG14, paragraph 41, that planning consent can be conditional that the development will not commence until an adequate site investigation and assessment has been carried out and the development incorporates the measures shown to be necessary in the assessment.
- 5.6 Prior to site clearance activities, all existing trees, hedges and other features to be retained would be identified and appropriately fenced to ensure their protection during the construction period. If signs are found of recent use by bats in any trees requiring branch removal to allow abnormal loads access, Natural England would be informed immediately and no further related work would be undertaken until appropriate measures had been agreed and the necessary licenses obtained. Work to prepare the site would be carried out in the most appropriate season where possible.

- 5.7 A construction compound would be required for general storage of materials and construction plant, and for workforce welfare facilities. The proposed location of the construction compound is not known at this stage but is likely to take up an area of approximately 2,000 sq.m.
- 5.8 The site preparation contractor would use standard civil engineering plant (e.g. excavators, rollers and dump trucks etc.) to prepare the site.
- 5.9 A site sign would be located at the entrances to the site. This would provide information about the development and the applicant, together with essential safety information and telephone numbers.

### Construction Programme

- 5.10 The start of construction would be dependent upon securing detailed planning permission for the project. Other factors such as market forces may also affect the start date. It is assumed for the purposes of this ES that, subject to the necessary approvals, construction work is anticipated to commence on site in mid 2012. This is however only an indicative start date and is subject to change depending on the progress of the scheme through the planning process.
- 5.11 The construction programme would be approximately three years. This would however be dependent upon the season, weather conditions and, possibly, planning conditions, either of which may result in breaks in the construction programme, prolonging the construction period. The final programme would be subject to detailed logistical planning within the working constraints.

### Construction Working Hours

- 5.12 A 'Considerate Contractor Scheme' would provide an agreement on working hours. Construction work would be limited to between the hours of 0700 and 1900 Monday to Friday.

### Workforce

- 5.13 The number of site personnel would vary through the construction stages.

### Road Access

- 5.14 A route access study will be undertaken which considers the most appropriate public highway route on which to transport the materials and associated equipment to the site.
- 5.15 A Traffic Management Plan would be agreed with Gloucestershire County Council as Local Highways Authority. Consultations would also be carried out with the local constabulary. Relevant applications would be submitted regarding the transport of abnormal loads. Consideration would be given to timing of deliveries and the requirement for police escort. These issues would be addressed within the Traffic Management Plan.

- 5.16 Details of the anticipated vehicle movements that would occur due to deliveries of general construction materials and plant, and the construction workforce will be defined with the Traffic Management Plan.

## On-site Access

- 5.17 The main access would be via London Road (roundabout). The upgraded roundabout would need to be of sufficient specification to withstand the heavy loads placed upon it and permit safe entry/accessing. The main access road (Highfield Way) would be constructed in the early stages. This would be 5m in width when straight and 7m in width at bends. The initial access tracks would be made of surfacing material, (artificial shingle to a depth of 0.2m), on a sub-base material, (natural shingle to a depth of 0.3m). Both layers would be sufficiently compacted.
- 5.18 Drainage ditches would be situated on both sides of the track and would be approximately 0.6m to 1m in depth, located approximately 0.5m either side of the track. Where a drainage system needs to cross the track a pipe of an appropriate diameter would be placed in concrete underneath the track.
- 5.19 Drainage would be designed to minimise impacts on surface and groundwater flows. In some areas there may not be a requirement for drainage.
- 5.20 A one-way system for the site would require increased ground disturbance through the construction of more tracks to form loops. A 2-way system would require wider tracks or passing places thereby causing greater ground disturbance. A managed one-way system would be implemented for both environmental and health and safety purposes. A communication system would be used to ensure vehicles do not pass each other and cause unnecessary ground disturbance.

## Site Vehicles

- 5.21 The contractor would select the type of construction vehicles to be used on site. However, it is expected that the following vehicles would typically be used during the construction phase:
- Cranes: one 90 tonne crane for the preliminary assembly and one 500 tonne crane for erecting buildings;
  - Articulated trailer lorries: import of equipment and components. The towers would be delivered in three sections;
  - Low loaders: transport of construction equipment;
  - Construction workers' vehicles; and
  - General construction deliveries of materials, plant and machinery.
- 5.22 Details of construction plant and traffic impacts are discussed in detail in Chapter 10 Access and Traffic.

- 5.23 Prior notice of the start of the construction process would be given to residents in the immediate vicinity of the site and to communities along the main access routes via communication with parish and town councils.

## Construction Traffic Access Hours

- 5.24 Periods in which heavy goods vehicles (HGVs) can access the site would be agreed with the Local Highway Authority, Gloucestershire County Council. HGV construction traffic would be limited to arriving and departing from the site between the hours of 0700 and 1900 Monday to Fridays. Approval would be sought from the Police and abnormal load authorities, as appropriate, prior to any abnormal loads movements on the public highway. Where possible the delivery of materials would avoid peak periods.

## Crane Hardstandings

- 5.25 Cranes would have a hardstanding area (sometimes known as a 'crane pad') adjacent to the location on which the main crane and auxiliary crane would be located whilst development is being erected. An area of approximately 40m x 40m should be allowed for. Crane hardstandings would need to be sufficiently flat to permit safe erection, but also gently sloped, with a maximum gradient of  $\pm 0.2\text{m}$ , to permit adequate drainage. Their location would be finalised by the contractor based on the pre-construction phase geotechnical investigations.
- 5.26 Construction of the crane pads would be to the same specification as the access roads. Assuming a gravel depth of 0.5m as a requirement for crane pads approximately 9,600 cu.m of concrete would be required for crane pads.
- 5.27 Crane pads would also be used for storage of materials during some construction stages. The crane pads would remain following construction to enable any maintenance work to be carried out.

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**Table 5.1 Schedule of Mitigation Measures during Construction**

**Topic Committed Mitigation: Proposed as Part of the Scheme**

**Ecology and Nature Conservation**

Habitats:

Habitat lost during construction will be limited to small areas of unimproved grassland of limited conservation value. Similar sized area would be regenerated naturally to compensate for this.

Reptiles:

Road construction will be necessary at locations across the site. At these locations potential reptiles could be located requiring reptile translocations to suitable reptile habitat

Birds:

Habitat loss during construction will be limited to a single drying pond and unimproved grassland that have the potential to be used as nesting and foraging habitat for local species. Natural regeneration of habitat nearby within the ponds area on-site and also the seeding of new grassland off-site on adjacent farmland can provide mitigation for this habitat loss.

Newts:

Mitigation will include avoiding specific ponds, conserving foraging areas and links between ponds and foraging grounds. A licence from Natural England will be required to disturb ponds, including use of heavy machinery within 30m of ponds. The activity within all ponds would be monitored on a weekly basis during the construction works in the vicinity of these ponds.

### **Topic Committed Mitigation: Proposed as Part of the Scheme**

#### **Noise and Vibration**

Construction Traffic:

Mitigation against the effects of construction deliveries is not possible. The abnormal loads would follow a predefined route to the site to minimise disturbance. These vehicles will also be travelling slowly, which will reduce noise further.

Construction Noise and Vibration:

No mitigation measures would be required for construction noise and vibration.

#### **Historic Environment**

10 metre exclusion zone around the Listed Building to be maintained at all times. Where construction activities have the potential to cause adverse effects on buried archaeological remains, (i.e. access), a programme of advance archaeological investigation will be implemented ahead of construction. This will be agreed with the Principal Archaeologist at Gloucestershire County Council before work commences. The investigation could include non-intrusive works such as geophysical survey and / or intrusive works such as trial trenching.

#### **Transport and Access**

All construction vehicles entering and leaving the site would use an approved route;

Statutory warning road signs would be erected as agreed with GCC Highways Department;

A 'Considerate Contractor' scheme would provide an agreement on working hours and the periods in which heavy goods vehicles can access the site;

By sourcing aggregate and processing concrete on site construction traffic volume is reduced;

There would be a programmed time of deliveries and dedicated waiting areas for heavy good vehicles;

The provision of a wheel washing system on the entry/exit of the site to prevent the unnecessary soiling of the local highway network; and

Vehicles transporting long loads would be subject to movement orders and escorted to the site as required by the local police.

#### **Geology and Hydrogeology**

The potential for pollution of soil during the construction phase would be mitigated by following widely accepted best practice techniques including:

Excavated materials would be stored in accordance with Defra's Good Practice Guidance for Handling Soils (2000) and Groundwater Protection Code for Solvent Use and Storage (1998);

An environmental spill kit would be kept on site in case of potential spills and leaks from vehicles or machinery;

Any on-site sanitary facilities would have an approved method of storage and disposal of foul sewage.

### **Topic Committed Mitigation: Proposed as Part of the Scheme**

Vehicle movement would be avoided or limited across areas of boggy land. Appropriate vehicles would be used for the ground type in order to avoid compaction and smearing of the soil. Where required, techniques used to minimise compaction of soil would include restricting access during wet conditions and the use of protective boarding and / or low ground pressure machinery.

Any newly constructed access routes would have sealed drainage ditches in order to prevent potential spills and leaks from vehicles or machinery entering surface water features or locally perched groundwater.

Prior to construction a geotechnical investigation would be undertaken to determine the ground conditions. Potential subsidence, slope stability, compaction and erosion would be assessed according to the engineering characteristics of the soil during the detailed design stage. The most appropriate measures to overcome issues identified by the ground investigation would then be determined.

The potential for accidental contamination of the aquifer can be reduced by adoption of good practice for the handling, storage and transportation of hazardous materials on site.

Design, construction and site staff would be familiar with and abide by standards set out in:

- Pollution Prevention Guidance Note 1: General Guide to Water Pollution Prevention;
- Pollution Prevention Guidance Note 4: Disposal of Sewage where no Mains Drainage is Available;
- Pollution Prevention Guidance Note 6: Working at Construction and Demolition Sites;
- Pollution Prevention Guidance Note 11: Prevention of Pollution at Industrial Sites; and
- CIRIA C502: Environmental Good Practice on Site.

The construction of the septic tank (at the Site Compound) would follow guidelines set out in Pollution Prevention Guidance Note 4: Disposal of Sewage where no Mains Drainage is available.

### **Hydrology**

- Surface Water Quality;
- Appropriate storage and transfer;
- Education on spillage;
- Clean-up facilities and procedures;
- Drainage channels with sediment traps;
- Restrictions on use of sensitive ground;
- Site sanitary facilities would be sealed systems, suitably located and emptied; and

- Surface water runoff and flood risk:
- Drainage channels around impermeable areas.

#### **Near Surface Flows:**

- Shallow excavations where possible; and
- Restrictions on use of sensitive ground.

#### **Socio-economic**

- Not applicable.

#### **Residential Building Foundations**

The erection of building plots would be subject to detailed design to confirm appropriateness of the specific ground conditions across the site. However, general details are provided below.

Foundations would be constructed using concrete amongst a reinforced steel framework and foundation construction.

Concrete would be mixed on site and sand and gravel would be brought into the site. The concrete plant would be located within a processing works area. It is expected that the concrete plant would be operational prior to the proposed construction work and will form part of the detailed planning application.

The concrete foundations to form the slab for the buildings would be constructed of ready-mixed concrete, (to be produced on site), amongst a reinforced steel framework to a depth of approximately 0.5m, depending on site conditions. A survey would take place prior to construction works in order to confirm ground conditions and inform detailed foundation design.

#### **Site Re-instatement**

The final works would involve the removal and restoration of the temporary site compound. Access roads within the site would be re-surfaced, if necessary, to provide a suitable surface for maintenance vehicles and cars.

#### **Mitigation**

Through liaison between the design and EIA teams mitigation measures have been designed into the proposals to become part of the scheme.

It would be the responsibility of the main construction contractor (Principal Contractor) to prepare and implement a Construction Environmental Management Plan. This would, amongst other things, set out:

- The contractor's legal responsibilities in respect of the environment;
- Detailed method statements for, amongst other things:
- Undertaking work in or close to areas of particular environmental sensitivity;
- Preventing alkaline deposition into the protected ecological mitigation areas;
- Inducting all site staff regarding their responsibilities under the CEMP;
- Site housekeeping;

- Arrangements (if required) for monitoring environmental effects;
- Arrangements for liaison with statutory authorities such as the Environment Agency, Cotswold District Council, the Highways Authority, and the public; and
- Contingency plans in the event of an emergency, such as a spillage of fuel from an item of construction plant.

The Principal Contractor would be expected to base the Construction

Environmental Management Plan on the information and recommendations contained in this ES and comply with all relevant legislation and guidance.

Any recommendations by the individual EIA specialists for additional mitigation, (i.e. over and above the proposed scheme with the built in mitigation measures), are set out as “Further Mitigation” in the ES Chapters.

The Schedule of Mitigation measures in table 5.1 below sets out the specific mitigation to be implemented through the construction environmental management plan during construction. Further details of these measures are provided in individual topic chapters of this ES.

### Summary

- 5.28 The construction of the Highfield Farm development is expected to take approximately twelve months. Sand and gravel from local quarries would be used during construction and concrete would be processed on site thus reducing construction traffic movements. A construction environmental management plan would be implemented by the principal contractor to ensure the construction stage mitigation is followed.

# 6. Landscape and Visual

## Introduction

- 6.1 This chapter refers to landscape issues associated with the proposed development of land at Highfield Farm, Tetbury (see figures 1 and 2).
- 6.2 The chapter comprises an assessment of anticipated landscape and visual impacts based upon a strategic development proposal.
- 6.3 The landscape and visual impact assessment has been prepared in accordance with the methodological approach set out in the 'Guidelines for Landscape and Visual Assessment; (Second Edition)'. The stated principal aim of these guidelines is to *'encourage high standards for the scope and content of landscape and visual impact assessments, based on the collegiate opinion and practice of members of the Landscape Institute and the Institute of Environmental Management and Assessment.'*
- 6.4 In accordance with recommended best practice, this work has been progressed as part of the development of the overall scheme, rather than as a discreet study carried out once the proposals have been finalised. In this way, the site planning process has been informed by, and responded to the ongoing landscape assessment work as the landscape constraints and opportunities have been taken into consideration at each stage of decision making. This iterative approach is appropriate to any new development, whether or not it requires a full ES.

## Landscape Development Strategy

- 6.5 The proposed landscape development strategy is described on LDA drawings 969.02 and 969.03. These drawings are intended to illustrate how key landscape elements identified in the landscape and visual baseline assessment have been incorporated as strategic design elements into an outline proposals for development of the site for housing. In this respect, key design principles adopted in developing an appropriate landscape strategy accommodate design guidance provided by both the development plans and advice prepared by the Cotswold Management Board. The following design strategies have been assumed;

### Existing Landscape Features;

#### Field Boundaries

- The boundary pattern has been retained wherever possible to ensure a continued visual presence within new development, existing traditional stone walls will be retained wherever possible, repaired where necessary and positively incorporated into new development patterns.

### **Trees**

- Existing trees, providing they are healthy and well proportioned, are to be retained wherever practicable either as focal points within development, or as boundary features;
- Where contributing major character to the site, as specimen trees, new generations of that species are proposed to perpetuate the feature.

### **Open Space Grassland**

- Areas of grassland will be retained as open space within the development to provide opportunities for recreation and conservation;
- The design will provide for and safeguards important habitat associated with identified areas of high ecological importance whilst allowing for pressures of public use.

### **Wetland**

- Important wetland habitats will be retained where possible and mitigation provided to compensate for areas where existing features are lost to development.

### **Skyline**

- Where development profile potentially projects above a rural skyline, a wooded feature will be planted to create a new skyline backdrop.

### **New Planting**

- The layout of new planting is designed to follow the characteristic pattern of existing woody features, to ensure visual cohesion;
- Blocks of new planting are sited to screen built development of high visual profile, and define development areas;
- New planting strengthens and creates wildlife habitat, ensuring contiguity and respect of existing habitat structure and wildlife passage routes;
- To substantiate the visual and ecological integrity of woody vegetation structure planting will comprise native trees and shrubs, particularly those that occur in the semi-natural habitat of the locality;
- Where development abuts open countryside, structure planting is utilised to give clear definition of the urban edge, and provide a strong landscape feature.

### **Housing Areas**

- Housing cells have been planned in sympathy with site contour, and in clear relation to the pattern of major field boundaries;
- Frontage housing and open space are aligned to provide notable sightlines into the site to Highfield Farm to provide an appropriate transition between town and country and enable visual reference to the locality;
- Housing alongside the A433 should address the road in terms of elevational treatment.

**New Roads**

- New major road alignments have been routed to tie in with the landscape pattern, with removal of landscape features kept to a minimum;
- Strategic planting has been designed to screen new roads and tie back into the pattern of perimeter woody vegetation.

**Landform**

- Substantial landform change have been avoided;
- Mounding has been avoided.

**Water Bodies**

- Balancing and attenuation ponds are to be designed to maximise open water and ecological diversity and to extend existing and create new habitat corridors throughout the site.

**Other Items**

- Lighting of streets, roads and hardstandings, which bring an urban presence into rural view, will be kept at low level where possible, and inside rural-edge tree belts;
- Existing rights of way have been be integrated into the development pattern. Features such as the stone stile alongside the London Road will be retained and their setting improved;
- New built form will be designed with reference to the Cotswold Design Code, published by Cotswold Design Council (March 2000).

6.6 With reference to the above, LDA drawings 969.02 and 03 propose a landscape led development strategy based on the following key design elements. These are reflected in the outline application masterplan prepared by Ashley Design;

- Access to the site is proposed via a new link from the existing roundabout along the A433. This will require the removal of 3 no. Lime trees covered by group Tree Preservation Order G1, a section of existing stone boundary wall and TPO Group A1. A full arboricultural assessment has been carried out by others and describes the extent of tree loss associated with the outline application.
- The landscape and listed building setting to Highfield Farm is to be retained and enhanced through proposed removal of the conifer shelter belt and new avenue planting to frame and channel views from the London Road. A protected 'wedge' of retained farmland and paddocks is proposed in order to achieve a vista looking westwards towards Highfield Farm from London Road. A farm cottage style terrace is proposed to enclose this vista, channel views and screen potential views of the proposed access road approaching Tetbury from the north. In conjunction with Highfield Farmhouse and associated outbuildings this area will provide an buffer of open landscape to the north of the proposed new development and an appropriate transition zone between the new development boundary formed by this proposal and the open farmed landscape to the north.

- The existing conifer screen forming the northern site boundary to the east of Highfield Farm is an alien feature in the landscape and will be removed. There is an establishing shelter plantation of Beech immediately to the north of the existing conifer screen and this will provide a more appropriate shelter belt edge than presently exists.
- A strong buffer of native woodland planting to the northern site boundary west of Highfield Farm will link with and complement the existing off site plantation to the east, and will provide a substantial new landscape edge shelter screening potential views of new development from open land to the north.
- Existing off-site planting along the western site boundary will be strengthened and reinforced to provide a strong landscape buffer from the adjacent school and sports fields.
- The proposal provides a significant opportunity to improve the northern approach to Tetbury by providing new sensitively designed development which directly addresses the London Road alongside the south-eastern boundary of the site. This will require the selective removal of some roadside vegetation (described in detail in the arboricultural report) and the introduction of new walling and verge space as illustrated on the masterplan proposals.
- It is appropriate to provide a well landscaped buffer between new development and the existing housing bordering the site to the south. This would be subject to detailed design but could take the form of open space for recreation, together with dedicated allotment space (incorporating a small car parking area and possibly allotment building, formal play space and informal conservation areas associated with a suitably landscaped open water drainage feature located in the southern corner at the low point of the site. Key minimum dimensions defining the width of this open space relative to the site boundary are identified on the drawing.
- Existing tree cover across the site is poor. The proposed development provides an opportunity to introduce new tree planting to improve the local tree stock both within identified landscape buffers and also within individual development cells providing sufficient room is allocated at detailed design stages to accommodate this.
- Development within the site logically falls into several smaller zones defined by the existing field pattern and associated vegetation and walling. The existing field pattern is accommodated within the outline proposal through retention of existing field boundaries backed by reinforcement planting along existing and potential associated linear open space linking the core of the site with the proposed open space running along the southern site boundary. Where appropriate these will accommodate open surface water drainage channels and swales to create landscape corridors within the development.
- The existing pond northern pond will be retained and linked to the larger off-site pond feature adjacent to the north-west corner of the site within an informal landscaped zone with additional pond feature to be created immediately to the west of Mews Cottages to mitigate the loss of the smaller southern seasonal pond feature.

- Buffer planting is to be provided to the garden boundaries of Mews Cottages. This is to be sufficiently substantial to block potential views of the development whilst reinforcing the existing visual relationship between the Cottages and Highfield Farm.
- 6.7 In accordance with best practice the landscape strategy has been developed iteratively in response to the findings of the landscape and visual impact assessment and in response to the input of other design disciplines including ecology and hydrology. LDA drg 969.02 represents the initial response to the study area and the starting point from which landscape concepts were subsequently developed. The principal changes leading to evolution of design over time have been;
- Northern boundary line rationalised following review from Cotswold Conservation board.
  - Green wedge to east of Highfield Farm incorporated as protected element (land omitted from Red Line application boundary).
  - Green wedge to east of Highfield Farm extended to south to provide increased area of protection.
  - Additional tree planting indicated on land to east of Highfield Farm (improved biodiversity and long term replenishment of existing tree stock).
  - London Road frontage design approach further refined.
  - Newt protection zone accommodated within scheme design and linked to wider landscape structure to provide enhanced wildlife corridors throughout site.
  - Drainage swales incorporated within extended landscape corridors as part of co-ordinated drainage solution to site.
  - Integration of option for future connection to Sir William Romney School avoiding existing TPOs.
- 6.8 As this work relates to an outline planning application rather than a fully detailed one, the dimensions of key landscape elements have been identified on the drawings. It is envisaged that these would be referred to by the local planning authority in placing detailed conditions requiring the submission of fully detailed proposals for these areas should consent for the scheme be granted.

### **Landscape and Visual Impact Assessment of the Development Proposal**

- 6.9 The development proposal is described in Chapter 4 of the ES and is shown on Ashley Design masterplan drawing. This drawing, which has been prepared with reference to the developing landscape masterplan forms the basis of the following landscape and visual impact assessment.

### **Landscape Impact Assessment of the Proposal**

- 6.10 The landscape impact assessment describes the likely nature and scale of changes to individual landscape elements and characteristics, and the consequential effect on the landscape character, resulting from the proposed development. Whilst the potential changes

arising from the proposals can be factually defined, the significance of these changes requires qualitative professional judgements to be made.

6.11 The 'Guidelines for Landscape and Visual Impact Assessment (Second Edition)' note that 'The degree to which a particular landscape type or area can accommodate change arising from a particular development, without detrimental effects on its character, will vary with:

- existing land use;
- the pattern and scale of the landscape;
- visual enclosure/openness of views, and distribution of visual receptors;
- the scope for mitigation, which would be in character with the existing landscape;
- the value placed on the landscape.

6.12 In accordance with Appendix 6 of the guidelines the following significance criteria have been adopted based on the extent to which the proposals are assessed to improve, cause damage, or are neutral with respect to these key landscape features.

Severe Adverse; The proposed scheme would result in effects that

- are at a complete variance with the landform, scale or pattern of the landscape;
- would permanently degrade, diminish or destroy the integrity of valued characteristic features, elements and/or their setting;
- would cause a very high quality landscape to be permanently changed and its quality diminished.

Major Adverse; The proposed scheme would result in effects that;

- cannot be fully mitigated and may cumulatively amount to severe adverse effect;
- are at a considerable variance to the landscape degrading the integrity of the landscape;
- will be substantially damaging to a high quality landscape.

Moderate Adverse; The proposed scheme would;

- be out of scale with the landscape or at odds with the local pattern and landform;
- will leave an adverse impact on a landscape of recognised quality.

Minor Adverse; The proposed scheme would;

- not quite fit into the landform or scale of the landscape;
- affect an area of recognised landscape character.

Neutral; The proposed scheme would;

- complement the scale, landform and pattern of the landscape;
- maintain existing landscape quality.

Minor Beneficial; The proposed scheme has the potential to;

- improve the landscape quality and character;

- fit in with the scale, landform and pattern of the landscape;
- enable the restoration of valued characteristic features partially lost through other land uses.

Moderate Beneficial; The proposed scheme has the potential to;

- fit very well with the landscape character
- improve the quality of the landscape through removal of damage caused by existing land uses.

These terms are not absolute and often combinations of effects are experienced. In such instances it is a matter of professional judgement as to the appropriate level of impact significance based on the above definitions.

6.13 The 'Landscape Strategy and Guidelines for the Cotswolds AONB', published by the Cotswold Conservation Board, provides an appropriate check list of landscape receptors against which to assess the potential landscape impact of development within the AONB.

6.14 Potential landscape implications for the expansion of local settlements and roads identified in the 'Landscape Strategy and Guidelines for the Cotswolds AONB' are;

- Erosion of distinctive settlement patterns, particularly from the radial form of villages and the linear form of hamlets.
- Illumination of existing 'dark skies'.
- Upgrading of minor roads and lanes associated with new development and the introduction of suburbanising features such as lighting and kerbs.
- Damage to road verges and roadside hedges and walls and the creation of informal passing places.
- Introduction of suburban features such as mini-roundabouts, kerbs and traffic calming measures.
- Use of inappropriate materials.
- Loss of roadside hedges and walls.
- Loss of verge/roadside habitat.

Providing suitable conditions were placed on any forthcoming outline consent for development, the development proposal would;

- Conserve the distinctive character of villages and hamlets through appropriate layout, use of building material and landscaping,
- Ensure protection of existing dark skies through appropriate lighting design.
- Not necessitate the upgrading of existing minor roads and lanes.
- Conserve the character of the local road network by utilising an existing roundabout to create the main site access.
- Minimise loss of existing roadside verge/habitat and retain and enhance existing stone boundary walls by integrating them into the overall scheme design.

- 6.15 The potential landscape implications for the deterioration in condition of vernacular farm buildings identified in the 'Landscape Strategy and Guidelines for the Cotswolds AONB' are;
- Erosion of distinctive features and loss of Cotswold character.
  - Loss of locally historic features and erosion of the integrity of the landscape.
  - Decline in quality of the landscape.

The development proposal accommodates;

- The maintenance of distinctive Cotswold features through the conservation and restoration of existing stone walls and through the creation of an enhanced landscape setting to Highfield Farm.

- 6.16 The potential landscape implications for the ad-hoc woodland planting of coniferous shelter belts and farm copses identified in the 'Landscape Strategy and Guidelines for the Cotswolds AONB' are;

- Increased woodland cover diminishing the open character of the Dip-Slope Lowlands limiting long distance views.

The development proposal allows for;

- The removal of inappropriate coniferous shelter belt planting along the northern boundary of the site.
- Restricted shelter belt planting to screen potentially sensitive views along part of the northern boundary (west of Highfield Farm), and to reinforce existing hedgerow planting along the western site boundary. These plantings would reflect the prevailing shape and scale of existing geometric and linear vegetation belts.

- 6.17 The 'Cotswolds AONB Landscape Character Assessment' (2004), published by the Cotswolds Conservation Board identifies Tetbury as forming part of the 'Dip Slope Lowlands; South and Mid Cotswolds Lowlands' Character Area 11A. The strategy document notes that *the 'strongly structured, cultivated Dip-Slope Lowland landscape, is sensitive to large scale developments that might interrupt wide views across the landscape and in particular to developments that would introduce tall vertical elements such as pylons and wind turbines.....However, the presence of more intensively managed landscapes makes the Dip Slope Lowland generally less sensitive than remoter and more elevated landscapes on the High Wold and High Wold Dip Slope. Areas where a strong woodland framework exist are particularly suited to development. However, development proposals should avoid extensive new woodland planting to screen developments, as this would compromise the open character of the landscape and long views across the Dip Slope Lowlands.*

- 6.18 The application site benefits from existing shelter belt planting and hedgerow planting along its western and northern boundaries (in part) and to a lesser degree its eastern boundary alongside the London Road. In addition to providing an element of existing screening, the existence of existing planting reduces the need for extensive new boundary planting enabling a design approach consistent with maintaining the existing degree of openness within this part of the AONB.

- 6.19 Taking the above into account the outline development proposal will have both positive, neutral and negative impacts as follows;

#### **Potentially Positive Landscape Impacts**

On site and perimeter planting will be retained and reinforced in order to maintain and improve long term vegetation cover. The development proposal ensures the retention and improvement of existing hedgerows and promotes the establishment of native species hedgerow trees identified as lacking on site.

The proposal will introduce enhanced ecological diversity through the management and protection of existing resources and the introduction of new landscape features including ponds, native planting and grassland management.

There is an opportunity, through adoption of the proposed strategic design proposals and good design at detailed design stage, to create a new setting to the northern approach to Tetbury and to positively enhance the character of this part of the Cotswolds AONB.

#### **Potentially Neutral Landscape Impacts;**

Although the character of the site will change from farmland to built form the proposed residential layout would be seen as a logical extension of the existing urban edge of Tetbury and the degree of additional enclosure along boundaries is restricted primarily to screen planting associated with the north west edge and the essential openness of the land is maintained.

The proposal would be an appropriate land use and fit with the local scale, landform and landscape pattern and has been designed to minimise the loss of existing vegetation and reflect the existing pattern of field boundaries by creating a number of smaller development cells within the main site area.

#### **Potentially Negative Landscape Impacts;**

There would be a loss of some existing landscape features identified as short sections of stone walling, tree loss in order to form the site access, and loss of the southernmost pond. Loss of all of these elements is quantifiable and has been mitigated through the outline scheme design.

There would be a loss of open farmland.

#### **Overall Assessment of Impact;**

Based on the assessment criteria described at 6.12, and taking the combination of the above impacts into account, the development proposal has the potential, through the creation of a new, sympathetically designed urban edge to Tetbury, to have a **minor to moderate, beneficial** impacts on the landscape character of is part of Tetbury in the context of the wider area of the AONB. This assumes suitable conditions are placed on any forthcoming consent in order to secure positive landscape change through appropriate detailed design.

### Visual Impact Assessment of the Development Proposal

- 6.20 From the 'Guidelines for Landscape and Visual Impact Assessment (Second Edition); *'The assessment of visual effects describes;*
- *the changes in the character of the available views resulting from the development;*
  - *the changes in the visual amenity of the visual receptors, (defined here as the viewer group who will experience an effect).'*
- 6.21 For the purposes of the Visual Impact Assessment the following significance criteria have been adopted in accordance with Appendix 6 of the guidelines;
- **Substantial Impact;** This occurs if development results in a high number of local residents, workers or visitors (pedestrians) experiencing a major long term or permanent change in the nature and quality of the existing view. Substantial impact will occur if the development becomes a dominant component in the view, irrespective of distance.
  - **Moderate Impact;** This occurs if development results in a number of local residents, workers or visitors (pedestrians) experiencing a change in the nature and quality of the existing view that is short term or will be mitigated in the long term. Moderate impact will occur if the development becomes a noticeable component in the view, but the overall structure and balance of that view is maintained.
  - **Slight Impact;** This occurs if development results in a low number of local residents, workers or visitors (pedestrians) experiencing a minor change in the nature and quality of the existing views. This may be short term, or a more significant transient effect from a vehicle. Slight impact will occur if the development will be only partially visible or seen entirely but only with concentration or difficulty.

These impacts may be either beneficial or adverse.

- 6.22 The site visual appraisal summarises the broad range of typical views of the development and refers to the ZVI of the site (defined as land within the red line application boundary). Taking into account the sensitivity of receptors identified under the baseline studies, the potential visual impacts on views from key locations within the ZVI can be assessed against the above significance criteria;

#### **A. Areas lying outside the Immediate Visual Envelope of the site**

For the most part, views from land, roads and properties in excess of 1.0km from the red line application boundary are blocked by the effects of landform, vegetation and built structures. The development as proposed would result in **neutral** visual impacts on these areas. There are however limited and restricted middle distance views from rising agricultural land to the south west where the site is viewed beyond the existing industrial areas alongside the London Road. Existing glimpsed views of open land would be replaced by built form however by virtue of distance from site and the existing intervening development these impacts would be **slight** and mitigated over time by proposed new tree planting along the London Road.

Views from land, roads and properties between 0.5km and 1.0km from the red line application boundary are blocked by the interacting effects of landform, vegetation and built structures. Development of the site as proposed will result in no significant changes to the balance or quality of existing views and the anticipated level of visual impact from these areas is assessed as **neutral**.

### **B. Areas lying within the Immediate Visual Envelope of the site**

There are views of the site from land, roads and properties within the immediate visual envelope of the site as identified on LDA figure 6. Development of the site as proposed would result in potential visual impacts on these areas which are described as follows;

Assessment of Visual Impacts from roads within the ZVI within 0.5 km of site;

The eastern part of the site is visible from along approximately 600m of the A433 London Road at the point where the road runs alongside the eastern site boundary. Existing boundary tree planting filters view westwards across the site. The central hedgerow within the site restricts views of land to the west of Highfield Farm. Development of the site as proposed would result in the introduction of built form along the eastern site boundary and the design intention is that new housing would address the London Road but be set back behind a landscaped strip accommodating existing and new tree planting. The road is a major route into Tetbury and a significant number of road users would experience a notable and permanent change in view with a loss of existing filtered views across open land. There is currently no footway along this section of road and visual receptors will generally be travelling at speed and the impacts will occur over a short section of road. The retention of existing boundary trees and new tree planting would partially mitigate the visual impact of new built form, however changes to the view would be permanent and development would become a dominant element in the view. For these reasons the potential visual impact is assessed as **substantial**. As previously noted however, it is anticipated that visual impacts associated with the creation of an improved northern approach into Tetbury would be positive rather than negative.

There are limited middle distance views of the site from occasional isolated gaps in boundary vegetation along Blind Lane to the west however these are primarily of the existing hedgerow running alongside the western site boundary. Development of the site as proposed is likely to result in extremely localised visual impacts through vegetation gaps comprising elements of built form. There may be glimpses of new housing above and through gaps in the hedgerow however the proposed reinforcement planting along this boundary would provide significant mitigation. Potential visual impacts along Blind Lane are assessed as being generally **neutral** with **slight** localised impacts through existing vegetation gaps.

Assessment of Visual Impacts from private residences within the ZVI within 0.5km of site;

Potential visual impacts relate to properties i). situated immediately alongside the southern boundary of the site, along Shepherds Mead, Ryland Close and Cheviot Close and ii). properties lying within the original study area as defined on LDA drg 969.01, situated

immediately to the north of the red line application boundary and comprising Highfield Farm and associated outbuildings including Mews Cottages and The Cottage.

Properties currently overlooking the southern boundary of the site will have clear views of the proposed development, primarily from first floor windows looking north. The properties immediately abutting the site block potential views from properties further south minimising more extensive visual impacts to the south and this is reflected on the ZVI defined on Figure 6.

Individual properties overlooking the site would experience a change to the nature of existing views. The degree of sensitivity in each case will depend on a combination of site visibility, (i.e. whether views of the site are filtered by intervening vegetation), and primary direction of view from the property, for example orientation of buildings, location of living rooms and gardens relative to the site. Because views from residential properties are essentially fixed and constant the sensitivity to change in view is generally greater than for temporary visual receptors moving through the landscape where the nature of a view may change significantly over a relatively short distance. The proposed landscaped buffer strip to the southern boundary would distance new built form from the southern boundary. Boundary planting within the strip would screen potential low level views from gardens and proposed new tree planting would filter views from upper windows over time. Existing middle distance views across open fields to enclosing vegetation would be replaced with filtered views through vegetation to short distance views of new housing. Based on the identified significance criteria the associated level of visual impact for the approximately 25 or so individual dwellings along the southern boundary of the site is assessed as potentially **substantial** however the degree of potentially adverse impact would be significantly mitigated by the proposed landscape buffer strip. Housing to the south would experience relatively little change although there may be some glimpsed views of new housing through gaps between boundary properties. For this reason visual impacts for these areas are assessed as **neutral to slight**.

The primary direction of views from Highfield Farm are to the east (principle elevation) and west (rear elevation) and the rear garden of the property is enclosed by a high stone wall with well established tree planting along the gardens southern boundary. The design proposal provides a protected green corridor to the east in order to maintain the existing setting of the property, with the possible addition of a new lodge building to provide a gateway transition feature alongside the London Road. The walled garden and courtyard arrangement to east would block low level views from of the new development from this direction. Views to the north would be unchanged. There would be a change to the nature of the view to the south, from rural to urban, with open fields replaced by housing. On this basis development as proposed would result in **moderate** changes in the nature of view from the farmstead to the south with **slight** impacts to the west and east and **neutral** impacts to the north. The degree of change would be mitigated by the proposed enhanced boundary planting which would provide substantial additional screening over time.

Views southwards from The Cottage and outbuildings to the north of Highfield Farm would be generally blocked by Highfield Farm however there may be some **slight** changes in the view

to the south-west with the introduction of an element of built form providing an enclosing element to the protected green wedge between Highfield Farm and the London Road. The proposed removal of the conifer screen planting to the northern boundary of the study area would open up new views to the north across open farmland however these would reduce over time as the proposed new boundary planting establishes.

Views to the north and east from Mews Cottages, (5 no. individual dwellings), would remain as existing with associated **neutral** impacts, however, the proposed development would result in **moderate** to **substantial** changes to the existing views to the south and west respectively with built form replacing open land. These properties benefit from long rear gardens and a substantial belt of buffer planting is proposed as mitigation to identified impacts. Once established this will provide substantial dense screening of development on land to the west and south.

Assessment of Visual Impacts from footpaths/bridleways within the ZVI 0.5 km of site;

There are two footpaths in close proximity to, or crossing, the site. A footpath runs alongside the entire western boundary of the site before striking northwards across open fields towards Blind Lane. To the south of the site views are blocked by built form in Cheviot and Suffolk Close. There are however clear views across the site along approximately 135.0m of footpath north of the point at which the footpath meets the south-west corner of the site. The potential visual impact of development along this section of path is **substantial** however proposed boundary planting within the site would provide substantial mitigation through screening. The more northerly 135.0m section of footpath runs alongside the site behind an existing hedgerow and this provides a degree of screening that would result in only **moderate** changes in the nature of view which would also be mitigated through proposed boundary planting. There are filtered views through existing boundary vegetation across the northern part of the site from a short (180.0m) section of footpath beyond the north west corner of the site. Development of the site as proposed would result in **slight** visual impacts along this section and these would be mitigated by boundary planting.

A second footpath crosses the site in a north south direction to the east of Highfield Farm. The intention is that the southerly part of this path will be diverted in order to accommodate the proposed development. The northerly section retains its existing line through paddock land and thereafter runs northwards across farmland towards Broadfield Farm to the north. The potential visual impact of development along this southern of path would be **substantial** with enclosing development on all sides. The northerly 135.0m section of footpath would retain existing views to the north, west and east but there would be changes in view to the south with built form replacing open land resulting in **moderate** changes in the nature of view.

Assessment of Visual Impacts from open farmland within the ZVI 0.5 km of site;

Potential visual impacts on farmland close to the site are locally modified by intervening features such as variations in landform and hedgerows. Changes in the nature of view will be similar to those described for footpaths/bridleways (above) and the associated level of impacts are assessed as **slight** (where views are largely blocked, filtered or the site is distant and

indistinct) or **moderate** (where part of the site is visible). Proposed boundary planting will mitigate impacts over time.

Assessment of Visual Impacts from schools and industrial areas within 0.5 km of site;

There would be glimpsed views of new development through boundary vegetation from the school playing fields immediately to the west of the site. These would be similar in nature to,, though closer to the site than, those described in respect of views from Blind Lane. There may be glimpses of new housing above and through gaps in the existing hedgerow and boundary vegetation running alongside the public footpath however the proposed reinforcement planting along this boundary would provide significant mitigation. Potential visual impacts are assessed as being generally **slight** with localised impacts through existing vegetation gaps. The proposed planting to the western boundary of the site would mitigate these impacts over time.

### **Assessment of Visual Impacts from Representative Publicly Accessible Viewpoints (identified on LDA Photoviewpoint sheets 13 – 15);**

Photoviewpoints 31 – 37 are representative of typical views of the study area from within the ZVI. Associated levels of visual impact associated with development of the site as proposed are assessed as follows;

Photoviewpoint 31; The conifer screen would be removed and replaced with native hedgerow planting reinforced by standard tree planting within the open paddock to provide long term replacements of existing tree stock. A lodge house is proposed alongside the London Road to provide a transitional gateway element between town and countryside. The main housing area would not be visible from this viewpoint. The new lodge building would result in **moderate** visual impacts although the overall structure and balance of the view would be maintained.

Photoviewpoint 32; Selected trees would be removed and additional avenue planting introduced to formalise the planted boundary. Proposed housing would address the road but be set back from the wall behind a landscape strip and softened by existing and proposed planting. There would be a permanent and **substantial** change in the nature of the view from along this section of road however with careful design this would result in positive change.

Photoviewpoint 33; This view looks northwards across the south western part of the site from the public footpath. The rear garden boundary of 4 Cheviot Close is to right of shot. Development of the site as proposed would involve the creation of allotment gardens in this corner of the site with associated buffer planting to screen views of housing beyond. The allotment gardens would maintain a degree of openness but there would be permanent changes to the nature of existing views giving rise to **substantial** visual impacts on the basis of the assessment criteria.

Photoviewpoint 34; Looking south from open farmland towards 'The Cottage' and the conifer boundary screen. The roofline of the Audi Garage along London Road is visible to the immediate right of the tree planting. Removal of the conifer screen would open up more distant views of open land to the south-east resulting in positively beneficial impacts. The

proposed new development is unlikely to be visible to any significant degree from this location however there may be some views of the industrial units to the east. These will be mitigated by boundary planting over time. For these reasons the degree of impact from this location is assessed as **slight**.

Photoviewpoint 35; This more distant viewpoint from the public footpath to the north of the site represents the edge of this part of the ZVI with further views from the north blocked by vegetation and landform. Rooflines of the proposed development may be visible to the right of 'The Cottage' (centre of view) however proposed boundary planting will completely block this view once established. Removal of the coniferous screen planting will lead to improvements in the view from this part of the ZVI. The degree of visual impact from this location would be **slight**.

Photoviewpoint 36: Looking east from Blind Lane across school playing fields the site is generally well screened by vegetation both along Blind Lane and alongside the public footpath skirting the western boundary of the site. Where occasional gaps occur in vegetation along Blind Lane there are glimpses of the site however these are only seen with concentration at distance. Proposed boundary planting would reinforce the existing blocking effect of vegetation and visual impact from this location is assessed as **neutral**.

Photoviewpoint 37; Looking north along the western boundary footpath towards Shepherds Mead. The existing hedgerow will block views of the development from further west (school grounds) but there will be a change of view from the footpath looking eastwards with middle distance views across open fields replaced housing. The proposed boundary planting will mitigate this over time by screening however there will be a permanent change in the view that resulting in **substantial** visual impact.

### C. Landscape and Visual Impacts During the Construction Period

Building operations will result in impacts as the site is developed. The land will become a construction site and there is likely to be a period of disruption to local residents including noise, dust and lorry movements to and from the site. The level of activity would not be greater than would normally be expected on a development site of this nature however, whilst construction work is underway **moderate adverse (temporary)** landscape impacts and **moderate adverse (temporary)** visual impacts will be generated in areas where slight or moderate permanent impacts are identified and **substantial adverse (temporary)** are anticipated in locations where moderate permanent impacts are predicted.

### Conclusion (Landscape)

- 6.23 Development of the proposed scheme has clearly followed a logical progression from a site survey, through analysis, to the evolution of a landscape masterplan and design details which have fed into a fully co-ordinated masterplan strategy prepared by Ashley Design Associates, drawing on the input from a variety of design specialism's.

- 6.24 The 2008/09 Strategic Housing Land Availability Assessment (SHLAA) undertaken by Cotswold District Council identifies the study area, (defined in the SHLAA as Sites T28, T35 and T40), as having potential for development.
- 6.25 This landscape development process has reviewed the landscape and visual characteristics of the study area, both with reference to available published literature and also following site investigations. The baseline analysis and associated drawings;
- establish what constitutes the landscape and visual characteristics of the study area;
  - consider how the component parts of that landscape can best be conserved; and
  - propose a landscape led landscape strategy which has been used to inform development of the development masterplan.
- 6.26 The anticipated landscape and visual impacts associated with the proposed masterplan have been identified and assessed and iteratively developed landscape strategies developed to mitigate identified impacts.
- 6.27 Key dimensions of structural landscape features are defined on the landscape strategy drawing on the basis that the implementation of these elements could be described and secured by the local authority through conditions attached to an outline consent.
- 6.28 Based on adoption of the landscape design criteria described in 6.05 and 6.06 the potential '*local forces for change*' associated with this site identified in the Cotswolds Conservation Board Landscape Strategy and Guidelines document are positively addressed. The continued northern expansion of Tetbury is consistent with the historic development pattern of the town and sensitive development of the site would provide an opportunity to create an improved urban edge to the northern boundary of Tetbury including an enhanced northern approach to the town along the A433. This has the potential to bring landscape benefits at not only a local level but also in terms of the wider AONB.
- 6.29 The provision of an informal park along the southern site boundary with linkages to a central landscaped area, and the use of resilient tree and shrub planting, long and short grassland areas managed to provide varied habitats and gentle ground contouring associated with shallow water feature and wetland areas would provide varied opportunities for informal play. Within the central core area ecological protection zones provide access to casual recreation areas which are safe and traffic free. These link to boundary planting permitting extended exploration of wild areas and providing further opportunities for informal play.

In this way the proposals would deliver new infrastructure consistent with the proposed settlement strategy for Tetbury described in Cotswold District Council's Local Development Framework Core Strategy 'Second issues and Options' paper (para 6.59), specifically through improved leisure provision associated with:

- open spaces accessible to the public;
- increasing semi-natural open space and new amenity green space.

In addition to this there is an acknowledged local shortfall of allotment sites and approximately 0.4ha. of land has been identified within the southern buffer zone for up to 16 full sized plots with associated infrastructure or a combination of full sized plots with smaller half sized plots as required.

Collectively these elements will secure improved leisure provision in this part of Tetbury with significant community benefits.

- 6.30 It is concluded that the study area has the landscape capacity to accommodate new development providing development is of a suitable type and detailed proposals are developed within the identified landscape framework in a way that is compliant with Policies 42 and 45 of the adopted Cotswold District Plan.

# 7. Ecology

## Introduction

- 7.1 The purpose of this Chapter is to describe the ecological baseline of the site and surrounding area; assess the nature conservation value of habitats within the proposed development site; consider the presence of protected species of plants and animals; identify and assess the likely impacts of the proposed development; and, propose mitigation and conservation measures, as appropriate.
- 7.2 This Chapter is a summary of the full ecological baseline conditions established through desk studies and field surveys provided in Technical Appendix 7.1 and detailed Ecological Impact Assessment provided in Technical Appendix 7.2.

## Assessment Approach

### Methodologies

- 7.3 Reference has been made to the key publications and legislation to guide the assessment of ecological receptors. A full list of these publications is provided in the Reference sections within Technical Appendices 7.1 and 7.2.
- 7.4 Desk Study
- The Gloucestershire Centre for Environmental Records (GCER) were contacted in 2009 and asked to provide any information on non-statutory site designations within 2km of the site and records of protected and/or notable species within 2km of the site (4km for bats).
- A web based search was undertaken in 2009 using the 'Local Live' website, the Multi-Agency Geographical Information for the Countryside (MAGIC) website and the National Biodiversity Network (NBN).
- A review of local natural environment policies from the Cotswold Local Plan (2001-2011) and the Gloucestershire Local Biodiversity Action Plan (LBAP) was undertaken in 2009.
- 7.5 Field Surveys
- Field surveys have been undertaken by staff of *ecosulis* Ltd within the site in 2009. Details of the methods used are contained within Technical Appendix 7.1. The following surveys have been carried out on the Application Site using standard best practice methodologies:
- Phase 1 habitat survey;
  - Daytime bats assessment of trees; and
  - Habitat Suitability Index (HSI) assessment for great crested newt
- 7.6 Evaluation
- The evaluation methods and terminology that follow are based on the approved guidelines

issued by the Institute of Ecology and Environmental Management (IEEM, 2006). Full details of the methods used for the evaluation are outlined within Technical Appendix 7.2.

#### 7.7 Ecological Impact Assessment

The assessment and terminology used in the main body of this Chapter is based on guidelines issued by IEEM in 2006. Technical Appendix 7.2 provides full details of the methods used for the assessment.

7.8 Valuations are afforded to Valued Ecological Receptors (VERs) according to a range of criteria such as site designations, inclusion within Red Data Books (RDB) or BAP, for example. However, other factors are also taken into account, for example, VERs that may be of low value in isolation may be subject to cumulative national decline and as such could be afforded higher values in certain circumstances. Values afforded to VERs include Negligible, Site, Local (Tetbury), District (Cotswold), County (Gloucestershire), National and International Value.

7.9 The IEEM guidelines recommend that the process of identifying the characteristics of the impacts should be made explicit by referring to the following when describing impacts: Confidence Levels, complexity, magnitude, duration, reversibility (permanency), timing and cumulative effects.

7.10 In assessing significance, the IEEM guidelines suggest making a decision about whether an impact is positive, negligible or negative and significant or not independent of the value of the receptor. In the first place significance is determined at the geographical level at which the resource has been valued. If an impact is found not to be significant at this level, it is then considered at progressively lower levels. The geographical value categories that have been used within this assessment mirror those used within the IEEM guidelines and characterise the extent to which impacts are significant.

7.11 The significance of the impacts has been assessed for each ecological receptor in the form of habitats and species from both the construction and the operational phases of the proposed development. The “significance” (characterising impacts) summarises such an assessment taking into account the characteristics of the impact.

7.12 If significant, the impact is identified as positive, negligible or negative.

- Positive (beneficial) – Advantageous or positive impact to an environmental resource;
- Negligible (neutral) – An effect that is likely to have a negligible influence, irrespective of other effects;
- Negative (adverse) Detrimental or negative impacts to an environmental resource or receptor.

7.13 The residual impacts of the development have been considered in the medium-term (ten years post-development) and the longer-term (25 years post-development). Residual impacts have been assessed as significant or not significant and whether positive or negative against the assessment criteria following the guidelines by IEEM (2006).

## Policy Framework

7.14 The relevant legislation and policy relating to ecology been considered within this assessment and are listed below and detailed within Technical Appendix 7.1.

- The United Kingdom Biodiversity Action Plan (BAP) 2002;
- The Wildlife and Countryside Act 1981 (and subsequent amendments);
- The Conservation (Natural Habitats & c.) Regulations 1994;
- The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007;
- The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2010;
- The Hedgerow Regulations 1997;
- Protection of Badgers Act 1992;
- Biodiversity. The UK Steering Group Report 1995;
- The Countryside and Rights of Way Act 2000;
- Planning Policy Statement 9: Biodiversity and Geological Conservation 2005;
- Planning Policy Statement 9: Biodiversity and Geological Conservation circular 2005;
- and the Natural Environment and Rural Communities Act 2006.

7.15 A list of relevant policies from Cotswold Local Plan (2001-2011) is provided below. For full details, reference must be made to the Local Plan itself.

- Policy 1 – Natural Resources;
- Policy 4 – Environmental Impact;
- Policy 10 – Trees, woodlands and hedgerows.

7.16 The Gloucestershire LBAP is currently being updated, and the full habitat and species action plans are not yet available. Reference has therefore been made to the previous LBAP (2000) plans' actions and objectives for those habitats and species identified as being retained within the updated plans. Within the Gloucestershire LBAP tassel stonewort, bullfinch, song thrush, hedgehog, slow worm, dormouse and glow worm have their own Species Action Plan (SAP). Standing open water and ancient and/or species rich hedgerows have their own Habitat Action Plans (HAPs).

## Scoping Criteria

7.17 The scoping assessment comprised a meeting with Cotswold District Council and subsequent correspondence, which addressed the mitigation measures and habitat enhancements proposed. All parties agreed that the Ecological Impact Assessment would be based on the results of surveys undertaken to date (Phase 1 habitat survey, daytime bats and HSI assessment), and a precautionary approach would be undertaken in relation to the possible presence of protected species for which Phase 2 surveys would be undertaken following the submission of this application of the site (hedgerows, badger, reptiles and great crested newts).

## Limitations to the Surveys and Assessment

- 7.18 The assessment has been based on Phase 1 and Phase 2 surveys (daytime bat assessment and survey of trees and Habitat Suitability Index Assessment), undertaken to date and the desktop study. Owing to time constraints, further Phase 2 surveys have not yet been undertaken for hedgerows, bats, badger, great crested newt and reptiles. Their presence cannot be predicted with absolute certainty and therefore, the assessment is based on the likelihood of the presence of these species/species groups, presence has been assumed and mitigation is provided on a precautionary basis.

## Baseline Conditions

**Site Description and Context** 7.19 The Application Site is situated on the northern fringes of Tetbury (centred on OS grid reference ST 895 941), with residential areas to the south, arable and grazed farmland to the north, east and west and the A4135, (London Road), with industrial and commercial premises beyond, to the south east. The site is currently managed as farmland and comprises poor semi-improved grassland, ponds, hedgerows, trees and woodland copses. Stone walls are present throughout the site. In total the site covers approximately 10.25ha.

## Baseline Survey Information

- 7.20 Full desk study and field survey results are contained within Technical Appendix 7.1. Figures 1-3 of Technical Appendix 7.1 provide location of habitats and species on site. The main findings are summarised below.
- 7.21 There are no statutory designations relating specifically to nature conservation within 2km of the site. A non-statutory Key (County) Wildlife Site (KWS) lies 1km from the site and given its distance and isolation from the site it is not likely to be significantly affected by development.
- 7.22 A detailed summary of the field survey results, including Figures, are provided in Technical Appendix 7.1. The habitats/species within the Application Site and relevant results of the desk study are summarised below in Table 7.1. The following table also provides a summary of the evaluation of habitats/species, which is based on the IEEM guidelines 2006 (Technical Appendix 7.2 outlines detailed evaluation methodology and rationale).

**Table 7.1 Summary of the results of VERs identified on site**

Ecological Feature	Qualifying Criteria	Ecological Value (based on a scale between Site and International value)
<b>Habitats</b>		
Poor semi-improved grassland	Semi-improved cattle and horse-grazed grassland. Provides suitable habitat for a range of local wildlife, including badgers, bats, birds, reptiles, amphibians and invertebrates. Habitat is common and widespread in the local area	Local Value
Mixed plantation woodland	Provides limited habitat for range of local wildlife including birds, more common bat species, badgers, invertebrates,	Local Value

## 7. Ecology

Ecological Feature	Qualifying Criteria	Ecological Value (based on a scale between Site and International value)
	reptiles and small mammals, as well as potential foraging and refuge habitat for amphibians such as great crested newt. Enhances the wider hedgerow network to some degree	
Hedgerows and trees	Provides habitat for a range of local wildlife including birds, more common bat species, badgers, invertebrates, reptiles and small mammals, as well as potential foraging and refuge habitat for amphibians such as great crested newt. Two hedgerows are species rich. GCER and the NBN website hold records for several species of plant including bluebell, within 2km of the site. Species rich hedgerows are a priority habitat. These hedgerows are likely to be important under the Hedgerow Regulations	Local Value (preliminary)
Ponds	Ponds 1 and 2 on site provide suitable habitat for amphibians such as the great crested newt as well as a foraging resource for common reptiles such as grass snake and habitat for common invertebrates. Pond 3 just off site to the north adds to the aquatic habitat network. Standing open water is a priority habitat	District Value
Adjacent habitats	Local farmland habitats with hedgerow networks and associated copses provide foraging, commuting opportunities and refuge for species such as badgers, more common bat species, birds, invertebrates, reptiles and amphibians. Local buildings and gardens also provide foraging and refuge for species such as hedgehog, common reptiles, invertebrates and birds. Highfield Farm buildings provide opportunities for roosting bats and nesting birds	District Value Local Value
<b>Species</b>		
Badger	Site used for foraging in combination with a wider territory. No setts present on site. GCER and the NBN website hold records for badger (no records of setts), the closest being within 2km of the site	Site Value (preliminary)
Bats	Site may be used for foraging and commuting common bat species using the wider area (GCER and NBN Gateway) in combination with the wider area, but the site is unlikely to form a significant route due to its proximity to the urban area of Tetbury. The site has potential for some tree roosts. GCER and the NBN website hold records for six species of bats within 4km of the site, including lesser and greater horseshoe bat, brown long-eared, common and soprano pipistrelle and noctule	Local Value
Other mammals e.g. hedgehog, brown hare, dormouse	The site provides limited suitable habitat for hedgehog and brown hare in the form of semi-improved grassland, hedgerows and trees. Dormouse are unlikely to be present due to the small, isolated areas of suitable habitat. No records are held by GCER and the NBN website for hedgehog, brown hare or dormouse	Site Value
Birds	Bird nesting opportunities are present within the hedgerows and trees, and the site may support a number of declining farmland species. GCER and the NBN website hold records for grey wagtail and house sparrow, within 2km of the site	Local Value
Amphibians	A moderate population is possible within Ponds 1 and 3. These ponds are suitable to support breeding great crested newt and other common amphibian species. Pond 2 provides	Local Value (preliminary)

Ecological Feature	Qualifying Criteria	Ecological Value (based on a scale between Site and International value)
	sub-optimal breeding habitat, but is likely to be used for foraging by any local population GCER and the NBN website hold records for great crested newt, 500m from the site; common frog, common toad and smooth newt, between 0.35km and 0.8km from the site	
Reptiles	The site is likely to support a small to medium population of common species of reptiles. The site is likely to be used in combination with the wider area GCER and the NBN website hold records for grass snake and common lizard, 1.1km and 2km from the site	Local Value (preliminary)
Invertebrates	The structural diversity on site is likely to support a good range of common invertebrate species GCER and the NBN website hold records for several species of moths and butterflies which are included in the LBAP, within 2km of the site	Site Value

7.23 In accordance with the IEEM Guidelines for Ecological Impact Assessment (2006), the individual features on site can be considered to have Site to District Value and overall the site is considered to have Local value with some features of higher and lower value. The values given to each ecological feature is provided in Table 7.1 above. Where presence or absence is unconfirmed, pending further survey, presence is assumed and the value is provided as a preliminary value.

## Key Impacts and Likely Significant Effects

### Construction and Operational Impacts

- 7.24 The impacts on VERs have been assessed, based upon the Landscape Design (Development Strategy Key Landscape Element, Dwg 969.03E, LanDesign Associates, May 2009) and Illustrative Masterplan (DWG: 2440-18B, Ashley Design Associates, December 2009).
- 7.25 The potential impacts of the proposed construction phase and operation phase of development on VERs are identified within Table 7.2 below. The characterisation of the construction and operational phase impacts is considered in detail within Technical Appendix 7.2.
- 7.26 Impacts in relation to habitats and species focus on the presence or assumed presence of these species in the absence of some Phase 2 survey data. Broad consideration has been given to other species, namely other small mammals within Technical Appendix 7.2.
- 7.27 The changes in land use from agricultural land to residential areas during the construction phase ensures that only habitats that will be retained such as mixed plantation woodland, poor semi-improved grassland, hedgerows, trees and a pond, will be subject to operational impacts. Where positive impacts are identified, these relate to those that will primarily arise as a result of retention of habitat and change of land use only, which will occur during the construction phase.

**Table 7.2 Summary of the potential impacts of the proposed construction phase and operation phase of development on VERs**

VER	Construction phase	Operation phase
<b>On Site</b>		
<b>Grassland</b>	Direct loss of approximately 7.8ha of grassland (approx. 80% total grassland area) to development. Retention of approx. 2ha of grassland Potential pollution from dust, run-off to boundaries of retained areas and potential hydrological changes	Increased recreational pressures Potential for hydrological changes and littering and dog nutrient enrichment Maturation of habitats
<b>Woodland</b>	Direct habitat loss of approximately 60% of woodland on site Visual, audio and potentially compaction root damage and vibration disturbance from construction machinery/operations and potential for pollution and light spill Creation of 0.1ha of woodland Enhancement planting of trees and scrub within buffer areas	Maturation of habitats provide larger area of native woodland Increased recreational pressures Increased risk of tree felling on health and safety grounds
<b>Hedgerows and standard trees</b>	Loss of some species poor and non-native hedgerows, but retention of both species rich hedgerows and new planting will increase overall hedgerow resource on site Approximately 30 trees will be lost, but 0.1ha of trees will be planted in woodland blocks and buffers along the northern site boundary, with additional trees within the wildlife area, grassland paddocks and community open space of more than 70 standard trees. Visual, audio and potentially compaction root damage and vibration disturbance from construction machinery/operations and potential for pollution	Increased disturbance and pollution Some retained hedgerows fragmented by roads Maturation of surrounding enhancement planting Indirect impacts of lighting
<b>Ponds</b>	Loss of one of the two ponds on site, but replacement wildlife pond to be created, as well as a third pond primarily for drainage reasons Potential for pollution and disturbance from construction machinery/operations could affect water quality and the wildlife its supports. Potential impacts from hydrological changes Creation of wildlife area surrounding two wildlife ponds including shrub planting and wildflower grassland	Increased recreational pressures and disturbance to wildlife, including potential for damaging fish and invasive aquatic plant introductions Lighting limits commuting corridor for some species Potential for pollution and disturbance from run-off and low-level recreation could affect water quality and the wildlife its supports. Maturation of habitats improve connectivity and overall wetland habitat area, which will complement existing habitats
<b>Badger</b>	Up to around 20% of foraging habitat within a badger territory will be lost, although much of the highest quality habitat on site will be retained New roads severing hedgerows Woodland and buffer zone planting Potential disturbance to foraging behaviour from noise and lighting disturbance	Maturation of foraging corridors Elevated levels of disturbance and dog walkers New roads severing potential corridors and posing increased risk of mortality when in operation Areas of high quality foraging due to the enhancements to woodland, hedgerows and grassland

VER	Construction phase	Operation phase
<b>On Site</b>		
<b>Bats</b>	<p>Loss of one of the ten trees with medium or low suitability for roosting bats. Some additional remedial tree works may be required to retained trees</p> <p>Retention of majority of boundary hedgerows, but loss of some central hedgerows and some fragmentation of retained hedgerows for road crossings</p> <p>Loss of one copse and one pond but extensive planting and creation of additional ponds</p> <p>Light pollution on retained areas during works affecting potential roost sites and foraging</p> <p>Potential for pollution to impact on the quality of foraging habitats</p> <p>Creation of new buildings will provide potential roost habitat for less sensitive species</p>	<p>Inappropriate lighting affecting potential roost sites, foraging and commuting routes</p> <p>Maturation of habitats, enhanced species/structural diversity, yet still fragmented by roads</p> <p>Increased risk of trees needing to be felled on health and safety grounds</p> <p>Potential for pollution, especially lighting, to impact on the quality of foraging habitats</p>
<b>Breeding birds</b>	<p>Loss of some hedgerows and woodland, which provides nesting opportunities for birds. Some farmland species likely to be permanently displaced</p> <p>Increased disturbance may deter more sensitive species from site, but many likely to be habituated to some level of disturbance from adjacent residential area</p> <p>Extensive habitat creation (woodland and hedgerows)</p>	<p>Maturation of retained and created features including woodland, hedgerows, new buildings, marginal vegetation and buffer zones. Potential of inappropriate management to reduce value</p> <p>Increased human disturbance and cat predation</p>
<b>Reptiles</b>	<p>Some hedgerows and woodland will be directly lost or fragmented. Large proportion of highest quality habitat retained</p> <p>Enhancements from planting</p> <p>Risk of injury and death during site clearance works</p> <p>Disturbance from noise and vibrations during works</p> <p>Enhancements from planting and provision of suitable habitat within buffer zones</p>	<p>Maturation of planting and establishment of grassland margins and wetland habitats will increase area of suitable habitat</p> <p>Permanently elevated levels of disturbance including increase in domestic cats</p>
<b>Amphibians</b>	<p>Loss of one pond (non-breeding), some hedgerows and woodland, and large areas of sub-optimal grassland habitat</p> <p>Creation of wildlife pond and enhancements to retained pond.</p> <p>Hedgerow and woodland planting and hibernacula creation</p> <p>Risk of injury and death during site clearance works</p> <p>Disturbance from noise and vibrations during works</p>	<p>Maturation of planting and establishment of surrounding wildlife area including tree and scrub planting, wildflower grassland and hibernacula will provide high quality habitat with good links to wider area</p> <p>Permanently elevated levels of disturbance, with risk of fish and invasive aquatic plant introductions to ponds</p> <p>Permanently elevated pollution levels, and risk of hydrological changes impacting on water levels and conditions in ponds</p> <p>Risks of road mortality and being trapped in gully pots</p>

VER	Construction phase	Operation phase
<b>On Site</b>		
<b>Invertebrates</b>	Some hedgerows and woodland lost, but all species rich hedgerows retained Enhancements from planting and creation of wetland habitats Disturbance from noise and vibrations during works, and from pollution such as dust	Creation of large areas of additional habitat (hedgerows, woodland, buffers, ponds) which will increase in value as they mature. Permanently elevated levels of pollution (emissions) and disturbance

## Significance of Impacts

7.28 Based on the impact descriptions and summary of key characteristics (Technical Appendix 7.2), and in order to inform mitigation for the proposals, the significance of the impacts on receptors is summarised in Table 7.3 below. An ecologically significant impact is defined as an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area.

**Table 7.3 Significance of the impacts on VERs during construction and operation**

VER	Construction phase	Operation phase
<b>On-site</b>		
<b>Grassland</b>	<i>Overall impact is negative, with significance at the Site level</i> Negative (certain) Direct loss of majority of grassland	<i>Impact is Negligible</i> Not significant (probable)
<b>Woodland</b>	<i>Overall impact is negative, with significance at the Site level</i> Significant (probable) Fragmentation of the site is likely to reduce its value to the wildlife it supports. Overall increase in woodland area but will take time to mature. Indirect impacts temporary	<i>Impact is positive, with significance at the Site level</i> Significant (probable) Due to amount of native woodland being created
<b>Hedgerows and standard trees</b>	<i>Overall impact is negative with significance at the Site level</i> Significant (probable) Small sections of hedgerows and low number of trees lost compared with amount retained and planted, but new planting will take time to mature Fragmentation of hedgerows likely to reduce their value to the wildlife they support. Overall increase in hedgerows due to planting. Indirect impacts temporary	<i>Impact will be negative, with significance at the Site level</i> Significant (probable) New planting will increase the length of hedgerows on site. Fragmentation will reduce their value to the wildlife they support Lighting will reduce value to nocturnal species
<b>Ponds</b>	<i>Impact is negative, with significance at the Site level</i> Significant (probable) Significant amount of habitat creation, however this will take time to mature. Potential pollution and hydrological impacts could affect overall habitat quality	<i>Impact is negligible</i> Not Significant (probable) New surrounding habitat of higher quality will increase in value as it matures. Potential pollution and hydrological impacts could affect overall habitat quality

VER	Construction phase	Operation phase
<b>On-site</b>		
<b>Badger</b>	<i>Impact is negative at the Site level</i> Significant (probable) Severing of foraging corridors and likely disturbance to foraging	<i>Impact is negative at the Site level</i> Significant (probable) Maturation of new planting and corridors. Habitat connectivity reduced by road crossings and risk of mortality
<b>Bats</b>	<i>Overall impact is negative at the Site level</i> Significant (probable) Bats have high mobility and are likely to use the site in combination with other habitats in the wider area for foraging. Loss of one potential tree roost and disturbance are likely to affect bat activity in the short term	<i>Impact is negative, with significance at the Site level</i> Significant (probable) Enhanced habitat and structural diversity overall and long-term retention and maturation of better value foraging areas, but new builds will not immediately provide replacement roost potential Severance of and lighting on hedgerows
<b>Breeding birds</b>	<i>Impact is negative and significant at the Site level</i> Significant (probable) Retention and protection of areas of suitable habitats during construction	<i>Impact is negative and significant at the Site level</i> Significant (probable) Continued disturbance may dissuade more sensitive species. More tolerant species likely to increase due to additional habitat
<b>Reptiles</b>	<i>Overall impacts are negative with significance at the Site level</i> Significant (probable) Large areas of suitable habitat to escape to but residual risk of injury or death	<i>A positive impact with significance at the Site level</i> Significant (probable) Retention and enhancement of grassland areas will provide additional habitat and will minimise increased levels of disturbance
<b>Amphibians</b>	<i>Overall impacts are negative with significance at the Local level</i> Significant (probable) Significant risk of injury or death from proposed works	<i>A negative impact with significance at the Local level</i> Significant (probable) Retention and enhancement of ponds and surrounding areas will provide additional high quality habitat with good connectivity, but increased disturbance and risks from pollution and hydrological change
<b>Invertebrates</b>	<i>Overall impacts are negative with significance at the Site level</i> Significant (probable) Dust and disturbance during construction likely to reduce value to invertebrates temporarily. Large areas of the best quality habitat retained	<i>A positive impact with significance at the Site level</i> Significant (probable) Significant increase in habitat area and quality

## Mitigation and Enhancement

7.29 The key objective of the mitigation measures proposed is to maintain species and habitats (VERs) in favourable conservation status. This is when the conditions of the VERs are such that they can be viably maintained in the long-term and without reductions in natural range. Mitigation measures also meet national, regional and local planning policy objectives and aim to work towards additional objectives such as those outlined within the UK and LBAPs.

- 7.30 The presence (or assumed presence) of the identified features on and adjacent to the site has been considered in the design layout, where possible, and the measures given here will further ensure that the impacts on features are negligible wherever possible, or if effects are unavoidable, recovery will follow. Wherever possible and practicable to achieve, mitigation will aim to enhance the features, thus promoting biodiversity gain.
- 7.31 The following section provides the inherent mitigation and general mitigation principles during pre-construction, construction and operational phases. Specific mitigation for habitats and species is summarised in Table 7.4 and detailed mitigation strategies are provided in Technical Appendix 7.2.

### Inherent Mitigation

- 7.32 The informed design layout contains key areas for ecological benefit. For locations of described features, reference should be made to the illustrative landscape masterplan (Development Strategy Key Landscape Element, Dwg 969.03E, LanDesign Associates, May 2009) and Illustrative Masterplan (DWG: 2440-18B, Ashley Design Associates, December 2009) and Figure 2, Technical Appendix 7.1. These include:
- Provision of a wildlife area in the north-western corner of the development incorporated retained and created ponds, with associated wildflower grassland, shrub and tree planting;
  - Planting of a tree and shrub belt to strengthen the northern boundary of the site;
  - Retention of all native species rich hedgerows and new hedgerow planting, with incorporation of hedgerows into 3m wide buffers;
  - Provision of wildlife features within the community open space and buffer along the southern boundary of the development, including tree and shrub planting and bat and bird boxes;
  - Sustainable drainage for the site, which will include a balancing pond, reedbed and swales, providing additional ecological benefit.
- 7.33 Care has been taken to retain the most important ecological features wherever possible, and to enhance/protect them by providing buffers between the features and development and with the use of strategic planting. In total, approximately 2ha of green space will be provided within the informed masterplan (not including gardens), amounting to approximately 20% of the total site area. This area will be made up of retained semi-natural habitat, buffers and additional green spaces.

### General Mitigation – Pre-Construction and Construction

- 7.34 The use of sustainable drainage systems (SuDS) within the development, appropriate design of the buffers and appropriate landscape/planting scheme will minimise the risk of pollution incidences and adverse hydrological impacts to the retained habitats on site. Contractors will be required to draw up method statements to demonstrate how they will manage their activities to avoid causing water and airborne pollution incidents during the construction

period. An ecologist will be consulted on the future detailed design of these measures to ensure that there are no conflicts with ecology.

- 7.35 Prior to works commencing, protective fencing will be erected around all retained ecological features on and adjacent to the site, namely the standard trees (in accordance with BS5837 (2005)), hedgerows, ponds and retained grassland to ensure minimal disturbance to habitats during works.
- 7.36 A Precautionary Method of Works (PMW) will be prepared outlining sensitive site clearance methods, including detail in respect to timing and species including amphibians, birds and reptiles (detailed below). Where practicable all vegetation removal will take place outside of the bird-breeding season (generally between March and September, inclusive), or vegetation will be checked thoroughly by an ecologist prior to removal. The removal of tree stumps and hedgerow bases will also be undertaken outside of the hibernation season for reptiles and amphibians. The sensitive timing of works, or precautions to be taken should works be unavoidable during sensitive periods, will be detailed within the PMW.
- 7.37 All habitat enhancements (planting and pond creation), where practicable, will be undertaken prior to works commencing, or in the early stages of construction works.
- 7.38 Method Statements (and licence applications where appropriate) will be prepared for all works that may affect ecologically important features, including tree removal (as appropriate), closure of Pond 2 and planting adjacent to sensitive features such as the new and retained ponds.
- 7.39 A general ecological briefing will be given to construction site workers informing them of the ecological value of habitats and species present on site, protection measures put in place, safe working methods relating to ecology, and contingency plans in case of discovery of protected species during works.
- 7.40 The PMW and species method statements will be detailed in a Construction Environmental Management Plan (CEMP; or similar) prepared prior to works commencing.

## General Mitigation – Operational

### Landscape and Ecology Management Plan:

- 7.41 Post-construction it is the intention that the long-term management of the retained and created habitats will be undertaken in order to ensure that the habitats remain in favourable condition for wildlife. A management company is proposed to fund management and monitoring of the site for up to ten years, which will follow detailed Capital and Annual Works Plans to be drawn up following detailed landscaping plans for the site.

#### Capital Works Plan:

- A Landscape and Ecology Management Plan (L&EMP) will be compiled detailing the capital and annual works plan, monitoring and reviews of the success of management principles;

- An interpretation board will be positioned within the wildlife area to inform of the sensitive nature of the habitats, the species that use them and ways to minimise disturbance to wildlife;
- Strategic planting will take place within the wildlife area with the aim of reducing disturbance to habitats from low-key recreational activities, such as dog walking;
- Bird and bat boxes will be positioned on suitable trees within the woodland, hedgerows and community open space and log piles will be provided adjacent to the ponds to provide habitat for reptiles, amphibians and invertebrates;
- Installation of alternative bat roosting sites (purpose-designed features) within new buildings;
- Installation of protective fencing around retained habitats.

### Annual Works Plan:

7.42 Annual monitoring of the habitats and species will be undertaken and triggers for management assessed. Triggers for management could include:

- > 20% scrub cover within the grassland associated with the community open space or wildlife area will trigger clearance;
- > 5% loss of grassland cover will trigger re-sowing and temporary exclusion areas;
- > 30% aquatic vegetation cover in water bodies will trigger vegetation removal;
- The L&EMP will be updated as required based on annual monitoring and reviews;
- General Management Principles.

7.43 General management principles will include the following:

- A minimal intervention and organic approach will be used. Weed killer and other chemicals will be used as little as possible on site. Spot removal of weeds will be carried out by hand where removal is necessary. If herbicides need to be used within the site, for example around the base of planted trees and shrubs, then these will be restricted to types approved by Natural England and the Environment Agency as suitable for use near watercourses. Guidelines for the use of herbicides on weeds in or near to watercourses (PB2289) will be followed.
- Hygiene works will be avoided, for example, fungal fruiting bodies should not be removed nor trees felled because they have bracket fungi on them unless classified as dangerous by an arboriculturalist. Where possible, trees will be allowed to age naturally and dying trees will be allowed to decay in-situ. Where a tree poses a health and safety hazard, advice will be sought from an arboriculturalist. General tree works will conform to BS3998 (1989). Every effort will be made to avoid altering important ecological features associated with the mature trees. Where tree works are unavoidable, a bat and nesting bird survey and assessment will be undertaken and appropriate mitigation and licences sought if present.
- Where possible, planting within the buffer zones, will use native species and those of known wildlife value.

- Litter will be removed from the site as part of on-going general management.
- 7.44 Monitoring will be used to determine whether or not objectives for the site and component features (for example amphibians, bats, badger and reptiles) have been met using focused and efficient data collection.
- 7.45 The L&EMP will be reviewed and revised annually following annual monitoring of habitat conditions and species populations. An annual monitoring report will recommend any necessary changes to the L&EMP and identify management requirements for the following year.

**Table 7.4 Summary of the specific mitigation for VERs during construction and operation**

VER	Construction phase	Operation phase
<b>On-site</b>		
<b>Grassland</b>	CEMP SuDS features to maintain water quality and hydrology Protection of areas of retained grassland Creation of grassland and wildflower habitats	Traditional management of retained and created habitat with the aim of benefiting structural and species diversity (L&EMP) Sensitive management and maturation of habitats
<b>Woodland</b>	CEMP and toolbox talk Protection fencing around all retained habitats Habitat creation equal to area lost, but all native planting	Appropriate management (L&EMP) Use of interpretation board and planting Assessment of trees by arboriculturalist and ecologist and minimalist approach to management Method statements for tree works
<b>Hedgerows and standard trees</b>	Retention, protection and enhancement of hedgerows of most ecological interest Protection fencing in appropriate areas close to construction Incorporation of buffer along hedgerows of width 3m Habitat creation Sensitive timing and phasing of works in accordance with CEMP and toolbox talk Sensitive lighting Sensitive timing of removal of hedgerows trees (bats, birds, reptiles and amphibians)	Sensitive management of hedgerow habitat (L&EMP) with the aim of benefiting structural and species diversity and meeting LBAP targets Sensitive lighting Assessment of trees by arboriculturalist and ecologist and minimalist approach to management Method statements for tree works
<b>Ponds</b>	CEMP and toolbox talk SuDS Protection fencing in appropriate areas close to construction Enhancements to ponds and planting within surrounding area Creation of one pond and a network of wetland features, including swales, ditch features and reedbed	Long-term, sensitive management of ponds and surrounding terrestrial habitat (L&EMP) Information boards and strategic planting to manage access SuDS features and wildflower planting to maintain hydrology and water quality Sensitive lighting

VER	Construction phase	Operation phase
<b>On-site</b>		
<b>Badger</b>	Retention of areas of suitable habitat and habitat creation/enhancement CEMP and toolbox talk Sensitive lighting Trenches that are left open have a means of escape	Provision of tree and scrub planting comprising beneficial species Sensitive lighting Information boards with respect to disturbance from dogs L&EMP – Appropriate management of retained and new features Use of speed restrictions and underpasses where appropriate
<b>Bats</b>	Majority of best quality foraging habitats retained within development One tree with bat potential will be felled or pruned in accordance with a PMW and additional trees planted to compensate for loss Planting, pond creation and grassland management (L&EMP) will maintain and enhance connectivity across site and foraging opportunities Provision of roosting features within new builds and retained trees Sensitive lighting SuDS to protect value of foraging habitat Incorporation of buffer around retained boundary hedgerows of at least 3m	Habitat creation/enhancement works including replacement habitat in the form of roosting opportunities Enhance foraging by sensitive management of woodland edges, scrub, aquatic features and species rich grassland (L&EMP) Sensitive lighting alongside habitats where possible Retain and promote deadwood habitat Maintain mixed age class of trees to ensure future potential roost sites Information board and leaflets to residents
<b>Breeding birds</b>	Planting of wildlife area and community open space with grassland, scrub, trees and wildflower grasslands Creation of new hedgerows Protection of retained features Provision of bird boxes on retained trees CEMP and toolbox talk Sensitive timing of works L&EMP – Appropriate low intensity management and monitoring of habitat quality	L&EMP – Sensitive management of retained and created habitats Information board and leaflets to residents
<b>Reptiles</b>	Retention of best quality habitat Relocation of reptiles to suitable receptor habitat on site under a PMW Habitat creation through hedgerows, woodland, buffer and wildflower grassland planting, hibernacula creation CEMP and toolbox talk Sensitive timing of works	L&EMP – Appropriate low intensity management and monitoring of habitat quality Information board and leaflets for residents Establishment of new habitats
<b>Amphibians</b>	Works under licence from Natural England (where great crested newt presence confirmed) Exclusion fencing and pit-trapping exercise (where great crested newt presence confirmed) Protection and enhancements of retained habitats Habitat creation through hedgerows, woodland, buffer and wildflower meadow planting, hibernacula creation and pond creation CEMP Sensitive timing of works	L&EMP – Appropriate low intensity management and monitoring of habitat quality Monitoring of populations and reactive management as necessary SuDS Information board and leaflets for residents Establishment of new habitats

VER	Construction phase	Operation phase
<b>On-site</b>		
<b>Invertebrates</b>	Retention and protection of better quality habitats Habitat creation through hedgerows, woodland, buffer, wildflower meadow planting and hibernacula creation CEMP and toolbox talk	L&EMP – Appropriate low intensity management and monitoring of habitat quality Establishment of new habitats

## Residual Effects

- 7.46 A summary of the residual impacts (mitigated) on the VERs is provided in Table 7.5 below. The confidence in predictions is detailed within Technical Appendix 7.2.

**Table 7.5 Summary of Residual Impacts**

VER	Residual Impacts	
	Post-Development Medium-Term	Post-Development Long-Term
Grassland	Significant Positive (Minor)	Significant Positive (Minor)
Woodland	Not Significant (Negligible)	Significant Positive (Minor)
Hedgerows and standard trees	Not Significant (Negligible)	Significant Positive (Moderate)
Ponds	Not Significant (Negligible)	Significant Positive (Minor)
Badgers	Not Significant (Negligible)	Not Significant (Negligible)
Bats	Not Significant (Negligible)	Significant Positive (Minor)
Breeding birds	Significant Negative (Minor)	Significant Positive (Minor)
Reptiles	Significant Negative (Minor)	Not significant (Negligible)
Amphibians	Significant Positive (Minor)	Significant Positive (Minor)
Invertebrates	Not Significant (Negligible)	Significant Positive (Minor)

## Summary

- 7.47 The majority of the area proposed for development within the Application Site constitutes well managed pasture (poor semi-improved grassland), with a small proportion of other habitats including mixed plantation woodland, hedgerows, trees and ponds. These habitats have suitability to support notable and protected species, including badger, common species of bat, breeding birds, amphibians, reptiles and invertebrates.
- 7.48 In general, construction impacts include the direct loss of a large proportion of poor semi-improved grassland, a small copse and a small proportion of trees, species poor hedgerows and a pond. All species rich hedgerows will be retained and protected, although one will be severed for a road access. The pond of highest value to wildlife will be retained, as will a large area of poor semi-improved grassland and a small copse and the majority of standard trees with suitability to support roosting bats. Habitat creation includes replacement and additional hedgerow and tree planting, replacement pond creation, habitat enhancement planting of the retained grassland to improve species diversity and the creation of wetland features (balancing pond, reedbed and swales). Indirect impacts to retained habitats include potential pollution from dust, noise, lighting, run-off and hydrological change. Indirect impacts to species include disturbance to badger, common species of bat, reptiles, amphibians and invertebrates breeding, from visual, noise and lighting from construction activities. Further indirect impacts to species are from habitat loss. Direct impacts to species include risk of injury or death to reptiles and amphibians. In general, operational impacts include the establishment and maturation of retained and created habitats, which will improve their inherent ecological value

and increase the resources available to local wildlife. Lighting, noise and recreational disturbance have potential to negatively impact on local wildlife.

- 7.49 Key mitigation inherent in the design includes: The provision of a wildlife area in the north-western corner of the development incorporated retained and created ponds, with associated wildflower grassland, shrub and tree planting; the 7.59 planting of a tree and shrub belt to strengthen the northern boundary of the site; the retention of all native species rich hedgerows and new hedgerow planting, with incorporation of hedgerows into 3m wide buffers; the provision of wildlife features within the community open space and buffer along the southern boundary of the development, including tree and shrub planting and bat and bird boxes; and, sustainable drainage for the site, which will include a balancing pond, reedbed and swales, providing additional ecological benefit.
- 7.50 All of these features provide opportunities for increasing biodiversity on the Application Site. Additional mitigation proposals further enhances these inherent design features for wildlife with the aim of minimising the identified impacts on key habitats/species.

## Habitats

- 7.51 The informed illustrative masterplan has been designed to provide a number of opportunities for building-in positive biodiversity features whilst retaining key existing features. Key on site mitigation includes the retention of the majority of the VER's within the redevelopment site, including a third of the woodland, all species rich hedgerows, one pond and 2ha of the poor semi-improved grassland.
- 7.52 The development layout has been designed to minimise fragmenting and isolating VER's by retaining the majority of the existing network of natural habitats around the Application Site boundaries (species rich hedgerows) and incorporating green corridors (buffers and public open spaces) into the design to link new and existing stepping stone features (hedgerows, new and existing aquatic features, large specimen trees to bridge hedgerow gaps, for example) with larger habitat patches off site. This will help to promote the migration, dispersal and genetic exchange of species in the wider environment. Where severance has been unavoidable, provisions have been made to mitigate loss of habitat connectivity, such as provision of underpasses, alternative corridors and strategic planting.

## Species

- 7.53 In terms of the criteria used in this assessment, measures have been proposed to protect from the negative effects of development, the species present that receive statutory protection and other species identified as requiring conservation action. The long-term residual impacts anticipated for the majority of species are positive, including badger, bats, breeding birds, amphibians and invertebrates, with negligible impacts predicted to reptiles. No negative long-term impacts are predicted. Further surveys would be required to determine the need for Natural England great crested newt and bat mitigation licenses.

- 7.54 The development provides the opportunity to contribute to national, regional and local biodiversity targets by enhancing and creating habitat that is valuable to European protected species, including bats and great crested newt, and to nationally protected species including badger and breeding birds.

### **Assessment of the Development Plan Against Local Planning and LBAP Objectives**

- 7.55 The opportunities provided by the development proposals would comply with national, regional policies and work towards a range of objectives set out within local planning policies (Cotswold District Local Plan 2001 – 2011) and Gloucestershire BAP (currently being updated) and the Gloucestershire Biodiversity Action Plan (BAP) objectives (further details are provided in Technical Appendix 7.2):

#### **Cotswold District Local Plan (2001 – 2011)**

##### Policy 1 – Natural Resources

The development includes an informed layout proposed to retain many of the ecologically valuable features on site and includes for a wide range of enhancements and habitat creation to ensure that the biodiversity value of the site is retained in the long term. SuDS will also be incorporated into the development.

##### Policy 4 – Environmental Impact

The overall residual impacts of the development on habitats and species are positive or not significant, and therefore the development is not considered to significantly harm the biodiversity of the site

##### Policy 10 – Trees, woodlands and hedgerows

Although the development will require the loss of a number of TPO trees, overall the area of native woodland, and the number of standard trees will increase within the development. All native species rich hedgerows on site will be retained and protected, and significant hedgerow planting will occur to increase this resource across the development site.

##### Gloucestershire BAP (2008):

##### Neutral Grassland HAP

The development will aim to reseed existing areas of species poor grassland on site to be managed as wildflower grassland

##### Woodland HAP

Although a small patch of woodland will be lost on site compensatory planting aims to increase the woodland cover on site overall, to include a variety of native species, which will be sensitively managed in the long-term

##### Ancient or Species-rich Hedgerows HAP

The two species rich native hedgerows on site will be retained and protected with grassland buffers, and additional species rich native hedgerows will be created with new planting across the site

##### Standing Open Water HAP

On small ephemeral pond will be lost, but two additional ponds will be created on site, and these will be enhanced with marginal native planting and long-term suitable management

# 8. Hydrology, Hydrogeology, Flood Risk and Drainage Assessment

## Introduction

- 8.1 This Chapter describes the assessment approach before detailing the existing site and surrounding area and geological conditions within the proposed development site. It then describes the existing hydrology and hydro-geological conditions, flooding history and existing drainage to set out the baseline conditions which currently exist.
- 8.2 It then describes the proposed drainage before identifying and assessing the likely impact of the proposed development. Arrangements to offset any negative and residual impacts are then described.
- 8.3 This Chapter is a summary of the full drainage baseline conditions established through desk studies and fieldwork provided in Technical Appendix 8.1 and detailed Drainage Assessment provided in Technical Appendix 8.2.

## Approach and Methodology

- 8.4 The approach and methodology which has been employed to assess the impact of the proposed development on the hydrogeology, hydrology and drainage of the area is set out below.
- 8.5 The following reports and investigations were deemed necessary in order to produce the baseline data to enable the assessment to be carried out.

Assessment Type	Reason for Assessment
Flood Risk Assessment	This is a requirement for sites in Flood Zones 2 and 3 regardless of size and all those over 1 ha in all Flood Zones.
Soakaway Assessment	This is required to assess the potential for infiltration techniques to be used.
Drainage Assessment	This is needed to establish the current drainage from the site and the proposed solutions.
Phase 1 Geotechnical-Environmental Desk Study	This report looks at the potential for contamination at the site. Contamination within the site could preclude the use of soakaways even if adequate infiltration rates were achieved.

- 8.6 In order to produce the aforementioned reports the following Statutory and Technical publications were used and consulted.

BRE365 Soakaway Design  
Building Regulations Part H – Drainage  
PPS25 Development and Flood Risk  
CIRIA C624: Development and Flood Risk Guidance  
WRC Sewers for Adoption 6<sup>th</sup> Edition – A Design and Construction Guide for Developers  
Institute of Hydrology Report 124 Flood Estimation for Small Catchments  
CIRIA Report C552 – Contaminated land Risk Assessment: A Guide to Good Practice  
CIRIA Report C665 – Assessing Risks Posed by Hazardous Ground Gases to Buildings  
BGS Solid and Drift Sheet No 251 Malmesbury

- 8.7 Preliminary reporting on baseline conditions including soakaway potential took place at the initial stages of assessment. The Soakaway Assessment was undertaken to establish if infiltration techniques could be used on the site. The information obtained from this was subsequently used in the Flood Risk Assessment and the Drainage Assessment.
- 8.8 Once all the reports had been completed the hydrology, hydrogeology, flood risk and drainage context of the proposed options for development were then assessed and mitigation measures considered.
- 8.9 The identified environmental factors which needed considering were:
- The replacement of grass field with buildings, roads, hardstanding and formal garden areas;
  - Water quality;
  - Disposal of surface water from the development;
  - Disposal of foul drainage from the development;.
  - Flooding from Cooks Pool;
  - The construction process itself;
  - Overland flows off the site and upstream catchment.
- 8.10 The assessment of impacts was carried out for each of the environmental issues noted above mainly by the:
- Identification of baseline environmental information in respect of the site and its environs and identification of potential significant environmental effects;
  - Identification of mitigation measures to reduce adverse environmental impacts and to enhance beneficial environmental impacts; and
  - Assessment of significance of predicted impacts taking account of any mitigation methods.
- 8.11 In certain circumstances where there is uncertainty whether a specific mitigation measure can be implemented or where the precise details are not known – for example where further investigation is required – this is stated along with the impact without mitigation and with proposed mitigation measures.

8.12 Baseline information on relevant topics is set out below in the following sections.

## Site Location and Description

- 8.13 The approximately 8.9 hectare site is located at NGR ST894941 and is bounded to the north by fields, to the south by residential houses, to the west by fields and a school playing field and to the east by London Road. Full descriptive details are given elsewhere in the Environmental Statement.
- 8.14 The site currently consists of 4 fields with some mature trees, dry stone walls and hedgerows.
- 8.15 The fields are covered in grass and 2 small ponds are located in the western part of the site.
- 8.16 The site has a steady downward slope from north west to south east of approximately 10m.
- 8.17 A group of buildings called Highfield Farm are located on the northern boundary.
- 8.18 A ditch exits the site on the southern boundary and is piped via a 300mm diameter pipe through the neighbouring properties. It is presumed that this outfalls into Cooks' Pool which is located approximately 250m to the south of the site just north of Tesco's petrol filling station but on the opposite (west) side of the road.
- 8.19 The proposed Site Layout is shown on Ashley Design Associates layout plan 969.03F which is presented elsewhere in this Environmental Statement.

## Geology

- 8.20 British Geological Survey Solid & Drift Sheets No 251 1970 Edition Malmesbury indicates that the site is underlain by Jurassic Series (middle) of the Great Oolite and Forest Marble strata. In detail these are limestone bands and skerries interspersed by shelly oolite (Acton Tidville Beds), with shelly limestone.
- 8.21 Trial pitting for soakage tests have shown that underlying strata can be divided into two distinct areas. The far eastern part from the eastern side of the farm buildings to the south east corner of the development site has topsoil overlying loosely bedded weathered medium grained yellow weak limestone interbedded with soft to firm yellow clay. The limestone fragments were in general 50-300mm long and 25mm thick. This was underlain in general by solid limestone.
- 8.22 The remainder of the trial pits in general had 0.2m topsoil overlying up to 0.6m of soft clay overlying a firm to stiff grey blue clay (Lias Clay) with varying amounts of limestone fragments. In the northern area a thin band of limestone was encountered within the clay.

## Hydrology

- 8.23 The surrounding catchment is well drained with an absence of defined dendritic channels or surface water features. The overriding hydrogeology from Ordnance Survey & British

Geological Survey data is dominated by the skerries supporting springs and aquicludes, recharged from intercepted surface water. Many of these will be short lived.

## Hydrogeology

- 8.24 Four percolations tests were undertaken in general accordance with Building Research Establishment's Digest 365:Soakaway Design to ascertain if adequate rates of soakage could be achieved so that infiltration techniques could be used to dispose of surface water from the proposed development..
- 8.25 These showed that a low but adequate soakage rates of approximately  $8 \times 10^{-5}$  m/s could be achieved in the eastern part of the site within the limestone shale but the remainder could be classed as impermeable.
- 8.26 The site lies within an Inner and Outer (Zone II and III) groundwater protection zone.

## Flood History and Records

- 8.27 The nearest source of fluvial flooding is the River Avon approximately 750m to the south east.
- 8.28 The Environment Agency's indicative flood map shows that the site has less than a 0.1% or 1 in 1000 year annual probability of fluvial flooding and therefore falls within Flood Zone 1 (Low Probability) as defined in PPS25. A 0.1% probability of flooding is within acceptable limits and no special features as part of the development are proposed to mitigate fluvial flooding.
- 8.29 There is a known flooding problem downstream which is focused on a Cooks' Pool. During periods of heavy rain there is uncontrolled run off from the fields which currently affects both adjacent properties with overland flows and Cooks Pool with in flows which exceed those which can exit via the outfall pipe which results in the pool flooding. This flooding runs along London Road affecting properties along its' route.
- 8.30 On the day of the site visit (22<sup>nd</sup> January 2010) the pond, which has a wall approximately 400mm above the adjacent London Road, was overflowing causing flooding of the road and the Tesco petrol filling station.
- 8.31 Overland flow off the development site was also noted in the south east corner.

## Existing Run Off

- 8.32 Calculations have been undertaken using Institute of Hydrology Report 124 for small catchments via MicroDrainage software.
- 8.33 This has given greenfield runoff rates for the 10 hectare development site of 48 l/s for a 1:1 year event, 115 l/s for the 1:30 year event and 152 l/s for the 1:100 year event.
- 8.34 Consultations have taken place with the Environment Agency to establish and agree the current greenfield run off rates from the un-development site and the allowable maximum permitted discharge rates from the developed site as given in 9.2 above.

## Existing Drainage

- 8.35 The site currently has no connections to the Wessex Water sewerage network for either foul or surface water.
- 8.36 A Wessex Water Sewer Layout plan shows adopted foul sewers in the vicinity of Shepherds Mead to the south of the site. There are not any surface water sewers in the area with highways being drained by highway drains. The nearest highway drains are in Shepherds Mead and London Road.
- 8.37 Wessex Water have confirmed that some of the foul network in the area is at capacity and that there are no nearby surface water sewers.

## Significance Criteria Assessment

- 8.38 The significance of predicted impacts have been determined by considering the importance of identified examples in relation to the predicted magnitude of any anticipated impact that could result from the development.
- 8.39 Below is a table which gives the importance of the selected criteria.

Importance	Criteria	Examples
Major	Feature with high quality, rarity or importance at regional or national level with limited potential for replacement.	Major aquifer providing potable water to a large population. Designated Site of Special Scientific Interest. Major fishing river
Moderate	Feature with average quality, relatively common and importance at regional level with potential for replacement.	Major aquifer providing potable water to a small population. Minor fishing river.
Minor	Feature with low quality, rarity but with importance at local level which could be easily replaced	Minor aquifer Local stream. Pond.

- 8.40 In order to ascertain the importance of the site, the presence of significant hydrological or hydro-geological features at the site have been reviewed against a list of potential features.

Feature	Presence on site	Notes
Major river	X	
Minor river	X	
Major stream	X	
Minor stream	X	
Major ponds	X	
Minor ponds	X	
Dew ponds	√	2 small ones
Major Aquifer	√	NE and SW of site only

Feature	Presence on site	Notes
Minor Aquifer	√	Centre of the site.
Source Protection Zone 1	X	
Source Protection Zone 2	√	
Source Protection Zone 3	√	
Drainage ditches	√	Small ditch on south boundary
Abstraction points	X	2 abstraction points within 500m

## Proposed Drainage

- 8.41 It is proposed to connect the foul drainage from the site into the existing Wessex Water network. Wessex Water have confirmed that there is sufficient capacity at the treatment works but modelling of the piped system in Tetbury is required to confirm a suitable connection point. Costs for undertaking this modelling have been obtained.
- 8.42 It is intended that in the very eastern part of the site where infiltration techniques have been shown to be viable, surface water from roofs and hardstanding will be disposed of by infiltration techniques. The final method will be developed at detailed design stage but soakaways and permeable paving will be considered. The geoenvironmental desk study has not highlighted any significant on site contamination which could preclude the use of infiltration techniques.
- 8.43 Surface water drainage from all the roads and from roofs and hardstanding throughout the remainder of the site will be discharged to a piped system which will be offered for adoption by Wessex Water.
- 8.44 There are currently three options being developed for the outfall from the piped system. Firstly it could continue discharging from the south east corner of the site via the existing ditch and pipe to Cooks Pool. Secondly an offsite sewer could be constructed to the existing surface water sewer in Springfields. This sewer would be requisitioned from Wessex Water and negotiations with Wessex Water are currently underway. Thirdly as the site currently discharges to the highway drain in London Road via Cooks Pool negotiations are currently being held with Gloucestershire County Council's Highways department about a piped connection to the existing highway drain located at the junction of London Road and Shepherds Mead.
- 8.45 The preferred option is the third one – a connection to the existing highway drain with flows restricted to those which currently flow off the site. This will provide the best environmental solution as by discharging the surface water to a sewer the quantity of water discharged from the current un-developed site will be reduced as the rain water which would normally have fallen on this area and eventually discharge from the south east corner of the site will no longer do so. This means that the volume of water flowing off the site to Cooks' Pool will be reduced and should reduce the flooding problems associated with Cooks' Pool.

- 8.46 In addition by connecting to the highway drain in London Road and not to the adopted surface water sewer in Springfields the length of off site sewer will be reduced meaning that the amount of disruption, noise and landfilled material will be significantly reduced.
- 8.47 However should the requisition not be viable for any reason it is intended to maintain the current situation by discharging surface water to the ditch at the south eastern corner of the site which then discharges via a pipe into Cooks Pool. The current agreed greenfield run off discharges rates will be maintained.
- 8.48 Attenuation of flows over and above the agreed discharge rates will be undertaken on the site in culverts, pipes and landscaped water features. Culverts and pipes will be utilised to store excess surface water flows for storms with return periods up to 1 in 30 years to comply with Sewers for Adoption with those additional flows from the 1 in 30 year return period up to the 1 in 100 year being attenuated in landscaped surface ponds. These ponds will contain planting including reeds which serve to remove any contaminants which may find their way into the drainage system. This will improve the quality of water being discharged from the development site.
- 8.49 It is proposed to harvest rainwater by the inclusion of water butts on suitable buildings.
- 8.50 The proposed adoptable surface water drainage will be designed in accordance with "Sewers for Adoption" and will take into account climate change. Private drainage will be designed and constructed in accordance with Part H of the Building Regulations. SUDS will be designed in accordance with CIRIA C624: Development and Flood Risk Guidance and PPS25: Development and Flood Risk.

### Proposed Run Off

- 8.51 The run-off from the catchment will continue but will be slowed down by the developed site and also reduced as discussed in 11.5 above.
- 8.52 It is proposed to construct a landscaped bund in the south east corner of the site to reduce the peak surface run off by attenuating some of the flows. This will be contained in the landscaped pond. This will allow it to be filtered to remove silt which will benefit Cooks Pool by it not being deposited there and also by retaining top soil on the site which would otherwise have been washed away. The environmental benefits of this landscaped pond have been described in Chapter 7.

### Consultations

- 8.53 Consultations have been undertaken with Wessex Water, Gloucestershire County Council's Highways Department, the Feoffees of Tetbury and the Environment Agency to agree the proposed surface water drainage strategies as described in section 11 above.

## Environmental Impact

- 8.54 In the above context the assessment criteria have been applied. The proposal to requisition a surface water sewer to take surface water from the developed area and discharge it into the existing surface water sewer in Springfields or the highway drain in London Road will help to reduce the amount and frequency of flooding from Cooks Pool which will provide betterment to affected properties including the Tesco petrol filling station.
- 8.55 Having reviewed the features present, the significance of predicted impacts on the local environment have been determined and it is considered that the significance of the development is minor.
- 8.56 The landscaping proposals in the south east corner of the site including ponds and bunds will also attenuate overland flows in the area. This will provide ecological benefits as well as significantly reducing the flow of water across the adjacent properties. Water will be filtered and silt removed by the planting. The ecological benefits have been described in detail in Chapter 7.
- 8.57 Infiltration techniques will be used in the far eastern part of the site to reduce the amount of surface water being discharged to sewers off site and to also replenish ground water supplies.
- 8.58 By providing water butts to collect rainwater on suitable buildings occupants will be able to water their gardens, wash their cars etc. without using tap water which will help to conserve natural water resources. This will also reduce the volume of water being discharged into the sewers which in itself will help alleviate flooding at Cooks Pool and within the downstream catchment.
- 8.59 A Site Waste Management Plan will ensure that during construction works the affect of the construction process will not have an unduly negative impact on ground or surface water together with the environment in general. Such items as:
- Bunding of fuel tanks to prevent fuel leaking into the ground;
  - Preventing silt run off from areas stripped of top soil;
  - Recycling of waste materials;
  - Minimising materials going to landfill;
  - Provision of spill kits; and
  - Effective drainage of welfare facilities;

will be considered.

## Mitigation Measures

- 8.60 Where there could be a negative impact by a development, means of mitigating negative impact need to be investigated. There are three levels:

## 8. Hydrology, Hydrogeology, Flood Risk and Drainage Assessment

- Prevent – Assess whether the item causing the negative impact is necessary or whether it does not need to be done.
- Reduce – Where a potential item is required, actions to minimise the negative impact should be explored.
- Remedy / Offset – Where the item can not be prevented or reduced actions to compensate for the action should be explored.

8.61 Once the level of mitigation is assessed the residual impact on the environment can be ascertained. There are three categories:

- Major – There is a significant impact on the environment.
- Minor – There is a moderate impact on the environment.
- Negligible – There is an insignificant impact on the environment.

8.62 These can be positive or negative i.e. the environment benefits or the environment is worse off.

Impact	Mitigation	Action	Residual Impact and Significance
Replacing fields with impermeable areas	Reduce	Attenuation of proposed flows to greenfield run off and attenuating additional flows on site, some in landscaped ponds. Provision of waterbutts and the use of infiltration techniques where possible	Insignificant Negative
Water Quality	Reduce	By attenuating overland flows silt will be able to settle out. The provision of reeds in the pond will aid the removal of any contaminants.	Insignificant Negative
Disposal of surface water from the development	Reduce	The surface water which will not be disposed of by infiltration will be attenuated on site and discharged into a sewer off site. This will provide betterment at Cooks Pool in terms of flooding and by restricting the discharge to greenfield rates will not adversely affect the downstream catchment.	Insignificant Negative
Disposal of foul effluent from the development	Reduce	Foul effluent will be discharged to the adopted foul sewer system and treated at the treatment works on the south side of Tetbury.	Negligible Negative
Flooding at Cooks Pool	Reduce	Attenuating overland surface flows in the onsite landscaped pond and reducing inflow to Cooks Pool.	Moderate Positive
The construction process itself	Reduce	A site Waste Management Plan will address issues such as recycling, prevention of pollution etc. and will provide site processes to minimise the impact of the development.	Moderate Negative

Overland flows off the site and upstream catchment	Reduce	By providing the pond in the south east corner and the provision of a landscaped bund the catchment runoff will be attenuated and restricted.	Moderate Positive
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## Conclusion

- 8.63 The site is currently grassland and is to be redeveloped for residential end use.
- 8.64 It lies in Environment Agency Flood Zone 1.
- 8.65 Infiltration as a means of disposal of surface water is only viable in the very eastern part of the site. The remainder of the site will be positively drained to an off site sewer with flows restricted to greenfield rates with attenuation in pipes, culverts and landscaped ponds.
- 8.66 Betterment will be provided to the current flooding at Cooks Pool both by taking water which would normally have discharged to it to an off site sewer and attenuating overland flows in the on site landscaped ponds.
- 8.67 Having reviewed the hydrological and hydro-geological features present on site, the significance of predicted impacts on the local environment have been determined and it is considered that the significance of the development is minor
- 8.68 This chapter has shown that with adequate mitigation measures in place and viewing the residual impact of the development as a whole there will only be a minor insignificant impact on the environment.

# 9. Transportation

## Introduction

- 9.1 This chapter of the Environmental Statement examines existing baseline conditions before highlighting the approach undertaken in assessing the environmental impact of the additional traffic resulting from the proposed development on the site. The scope of the wider traffic and transport impact assessments that underly this chapter were agreed with the Gloucestershire County Council (GCC) highway officer in advance. More specifically this chapter deals with the following key elements:
- the methodology employed to assess the impact of the proposed development on the local transport network;
  - the baseline conditions in terms of existing traffic volumes;
  - an assessment of the impact of the additional traffic on the local highway network;
  - an assessment of the impact of the additional traffic on the prevalence of accidents; and
  - identification of appropriate mitigation measures to offset potential negative impacts and any residual effects.

## Methodology

### Baseline Traffic Flows

- 9.2 In order to determine the net increase in traffic volumes as a result of the proposed development, traffic surveys were undertaken at the following junctions on Tuesday 24<sup>th</sup> November 2009:
- A433 London Road / Quercus Road roundabout;
  - A433 London Road / B4014 Hampton Street / A4135 New Church Street / A433 Long Street priority junctions;
  - A433 Long Street / Chipping Street / B4014 Market Place / A433 Church Street mini roundabout; and
  - The crossroads junction between the A433 Tetbury Road, Tarlton Road and Kemble Road;
  - The A433 / A429 junction near Cirencester was also included in the traffic assessments but previous March 2006 survey data for this junction was obtained from GCC.

### Future Year Assessment

- 9.3 It was further agreed with GCC that the operation of the various junctions should be assessed for the 2015 design year both with and without the proposed development.

- 9.4 In order to increase the surveyed traffic flows (2006 and 2009) to the future year scenario (2015), Tempro adjusted NRTF (National Road Traffic Forecasts) central growth factors were applied. The factors used were 1.110 for 2006 to 2015 and 1.071 for 2009 to 2015.

### Development Trip Generation

- 9.5 The methodology to calculate the development trip generation was agreed with GCC in advance. In summary the methodology used is given below:
- Peak hour person trip rates derived from the TRICS trip rate database using the mixed private/non-private residential category;
  - Modal split of the above person trip rates derived through reference to 2001 Census Data for the Tetbury Ward using the 'Method of Travel to Work – Resident Population' data set;
  - Vehicular trip rates for the residential element then calculated by applying the car driver modal share to the person trip rates; and
  - Peak hour vehicle trip rates for the Nursing Home element derived directly from the TRICS trip rate database.

### Development Trip Distribution

- 9.6 Trip distribution was again calculated using 2001 Census data for the Tetbury Ward. Tetbury was set as the Ward of residence, i.e. the origin of a work related trip, with the destination of work related trips then being identified at the Ward level within the Cotswold District and the Local Authority level beyond.
- 9.7 The most appropriate vehicular route to the various destinations was then identified 'by eye' to allow a percentage of trips value to be assigned to each of the main roads leading out of the town.

### Committed Development

- 9.8 GCC identified that the only committed development site that needed to be taken into account was the consented, but yet to be implemented, extension to the Tesco store on London Road, Tetbury.
- 9.9 Predicted traffic flows associated with this site were obtained from inspection of the Cotswold District Council planning files and applied to the base traffic survey results accordingly.

### Capacity Assessments

- 9.10 It was agreed with GCC that AM and PM peak hour capacity assessments be undertaken at the five junctions where traffic surveys were undertaken, namely:
- A433 London Road / Quercus Road roundabout;
  - A433 London Road / B4014 Hampton Street / A4135 New Church Street / A433 Long Street priority junctions;

## 9. Transportation

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- A433 Long Street / Chipping Street / B4014 Market Place / A433 Church Street mini roundabout;
- The crossroads junction between the A433 Tetbury Road, Tarlton Road and Kemble Road; and
- The A433 / A429 priority junction near Cirencester.

9.11 Two of the junctions are roundabouts and were assessed using the ARCADY computer programme with the remainder being priority junctions and assessed using the PICADY computer programme.

### Accidents

9.12 In order to determine the existing accident record in the local area, Personal Injury Accident, (PIA), data was acquired from GCC for a 5 year period. The data was then analysed to identify any particular accident clusters and the likelihood of any existing highway safety problems being exacerbated by development traffic.

## Baseline Conditions

### Traffic Flows

9.13 As identified above, traffic surveys were undertaken at various junctions within Tetbury and on the A433 towards Cirencester. The identified two-way flows on each road in 2009 are shown in the table below;

	AM Peak	PM Peak
A433 London Road north of Quercus Road	855	876
A433 London Road south of Quercus Road	888	905
A433 Long Street through the town centre	988	848
B4014 Hampton Street	592	525
A4135 New Church Street	712	643
B4014 Market Place	640	546
A433 Church Street	689	556
A433 south of A429 junction	800	721
A433 north of A429 junction	1,334	1,245

9.14 The surveyed flows set out above represent the existing conditions against which the impact of additional traffic associated with the proposed development has been assessed.

## Accident Data

- 9.15 Details of the number of PIAs recorded on the roads surrounding the site were obtained from GCC with full details being given in an Appendix to the Transport Assessment.
- 9.16 The severity of PIAs are recorded as fatal, serious or slight which are classified as follows:
- A fatal accident is an accident in which at least one person is fatally injured;
  - A serious accident is one in which at least one person is seriously injured, but no-one suffers a fatal injury, and which is in one, (or more), of the following categories:
    - an injury for which a person is detained in hospital as an in-patient; or
    - a person sustains any of the following injuries, (whether or not the person is detained in hospital): fractures, concussion, internal injuries, crushings, severe cuts and lacerations, severe general shock requiring treatment;
  - A slight accident is one in which at least one person suffers "slight" injuries, (for example, a sprain, bruise or cut which is not judged to be severe, or slight shock requiring roadside attention), but no-one is seriously injured, or fatally injured.
- 9.17 The accident records identify a total of 36 accidents within Tetbury over the 5 year period with 31 being classified as slight and 5 classified as serious. There were no fatal accidents recorded. In total there were 50 recorded casualties split as 6 serious and 44 slight.
- 9.18 Of the 36 accidents, 9 involved pedestrians (1 serious), and 2 involved cyclists (both slight). Children were involved in 3 of the pedestrian accidents (all slight), and 1 of the cyclist accidents (again slight).
- 9.19 The accident locations are relatively evenly spread with only small clusters at the junctions either end of Long Street but these are not considered to be excessive in number given the quantity of turning traffic and the general town centre environment. Beyond the town centre area there is a small cluster of accidents at the A433 London Road/Cirencester Road junction and again at the A433 London Road/Conygar Road junction.
- 9.20 Accident information has also been obtained for the A433 junction with the link to Kemble where only a single slight injury accident has been recorded over the last 5 year period. Accident data for the A433/A429 junction near Cirencester identifies a total of 6 accidents (all slight) and 11 casualties. Given the amount of traffic using the junction, this number of accidents is not considered to identify any major safety concerns.
- 9.21 It is therefore concluded that there are no types or locations of accidents that would be exacerbated by development traffic from the proposed Highfield Farm development site.

## Assessment of Impact

- 9.22 The Institute of Environmental Assessment (IEMA) has prepared guidelines for the environmental assessment of road traffic (Guidance Note No: 1). Column 3 of Table 2.1 of those guidelines sets out the recommended list of environmental impacts which could be

considered potentially significant whenever a new development is likely to give rise to changes in traffic flows. This chapter deals with the following subjects listed in the guidelines:

- Severance;
- Driver delay;
- Pedestrian delay and amenity;
- Accidents and safety; and
- Hazardous loads.

9.23 Other subjects that are included in the IEMA guidelines but not listed above are Noise, Vibration, Visual Impact, Air Pollution, Dust and Dirt, Heritage and Conservation Areas, and Ecological Impact. These subjects are dealt with elsewhere in this Environmental Statement.

### Severance

9.24 Severance is the perceived division that can occur within any community when it becomes separated by a major traffic route. The assessment of severance considers specific local conditions, in particular, the location of pedestrian routes to key local facilities and whether or not crossing facilities are provided.

### Driver Delay

9.25 Values for delays to vehicular traffic can be determined by the use of the Department of Transport's (DfT's) computerised junction assessment packages (ARCADY for roundabouts and PICADY for priority junctions).

### Pedestrian Delay and Amenity

9.26 As a general rule, it is considered that an increase in vehicular traffic reduces the time and quantum of acceptable traffic gaps. Accordingly, this will affect the delay incurred by pedestrians seeking to cross roads in the surrounding area, assuming that gap acceptance does not change.

9.27 The IEMA guidelines recommend that rather than rely on thresholds of pedestrian delay, any assessment should be based on professional judgement to determine whether pedestrian delay is a significant impact.

### Accidents and Safety

9.28 PIA reports have been obtained from GCC for a defined area within Tetbury. An assessment of the type and severity of accidents has been conducted in a qualitative manner.

### Hazardous Loads

9.29 The IEMA guidelines acknowledge that most developments will not result in an increase in the quantum of hazardous/dangerous loads. The publication "The Carriage of Dangerous Goods in the UK" lists materials which can represent a hazard when in transit, and provides guidance

in relation to the safe carriage of these goods. The proposed development is evaluated against that list.

### Vehicular Access

- 9.30 The proposed access strategy to the Highfield Farm site is shown on the plans included within the Transport Assessment.

### Trip Generation

- 9.31 The predicted vehicular trip generation of the proposed development is calculated within the Transport Assessment. However, the following table provides a summary of the predicted number of trips to and from the site in the AM and PM peak periods and across a 12 hour day (07.00 to 19.00).

	AM Peak		PM Peak		Daily
	Arrivals	Departures	Arrivals	Departures	Two-way
Vehicle Trips	62	163	110	89	2,035

### Traffic Impact

- 9.32 The effects of the operational traffic on the wider network in 2015 have been considered to produce a thorough investigation of the potential effects of the peak hour traffic generated/attracted by the proposed development. The Table below illustrates the predicted proportional increases in traffic on each of the assessed road links.

Link	AM Peak	PM Peak
A433 Church Street	7.6%	9.1%
B4014 Market Place	4.0%	3.9%
A433 Long Street	7.8%	7.7%
A4135 New Church Street	6.4%	6.0%
B4014 Hampton Street	2.8%	2.7%
A433 London Road (south of roundabout)	15.6%	13.1%
A433 London Road (north of roundabout)	7.8%	6.5%

- 9.33 The IEMA guidelines state that 'highway links should be assessed when traffic flows have increased by more than 30% or other sensitive areas affected by traffic increases of at least 10%'.

- 9.34 None of the roads experience a traffic flow increase greater than 30% with only the A433 London Road (south of the roundabout) experiencing a flow increase of greater than 10%. London Road is not considered a sensitive link in environmental terms given that direct frontage access is very limited and the 'with development' flow levels remain within the theoretical link capacity derived through reference to the Department for Transport guidance TA79/99: Traffic Capacity of Urban Roads. More detailed assessment is therefore considered unnecessary.
- 9.35 All the other road links assessed experience increases ranging from 2.7% to 9.1% which is considered insignificant based on IEMA's Guidelines.
- 9.36 In terms of vehicular movements during the construction of the proposed development, as these would be lower than the predicted number of trips following full occupation of the development, no specific separate analysis of construction traffic has been undertaken. The assessments undertaken for the impacts of development traffic effectively already provide a robust approach.

### Severance

- 9.37 Paragraph 4.31 of IEMA's Guidelines advises 'a range of indicators determining the significance of the relief of severance. Changes in traffic flow of 30%, 60% and 90% are regarded as producing "slight", "moderate" and "substantial" changes in severance respectively'.
- 9.38 As stated above, none of the existing roads will experience increases in traffic volumes in excess of 30% which is the minimum value necessary to create even a "slight" impact. Notwithstanding, the majority of pedestrian movements to and from the development site will be towards the south and the town centre and can therefore utilise the existing controlled crossings of the A433 London Road. The severance effects of the additional traffic flows will therefore be minimal.

### Driver Delay

- 9.39 Peak hour operational performance assessments of the local highway network have been undertaken using the DfT approved operational performance models ARCADY and PICADY. The detailed modelling results are discussed within the Transport Assessment. The following junctions were assessed for a 2015 base scenario (including committed development trips) and 2015 base plus proposed Highfield Farm trips:
- A433 London Road / Quercus Road roundabout;
  - A433 London Road / B4014 Hampton Street / A4135 New Church Street / A433 Long Street priority junctions;
  - A433 Long Street / Chipping Street / B4014 Market Place / A433 Church Street mini roundabout; and
  - The crossroads junction between the A433 Tetbury Road, Tarlton Road and Kemble Road.

- 9.40 The junction assessments demonstrate that all of the existing junctions operate with spare capacity in the peak hours in 2015 both with and without the proposed Highfield Farm development.
- 9.41 The inclusion of Highfield Farm traffic to the highway network would result in additional delays to non-development traffic at 3 junctions as follows:
- A433 London Road / B4014 Hampton Street / A4135 New Church Street / A433 Long Street priority junctions. Maximum driver delay increases from 1.08 minutes to 1.87 minutes in the AM peak and from 0.24 minutes to 0.28 minutes in the PM peak;
  - A433 Long Street / Chipping Street / B4014 Market Place / A433 Church Street mini roundabout. Maximum driver delay increases from 0.29 minutes to 0.33 minutes in the AM peak and from 0.61 minutes to 0.79 minutes in the PM peak; and
  - The crossroads junction between the A433 Tetbury Road, Tarlton Road and Kemble Road. Maximum driver delay increases from 0.20 minutes to 0.21 minutes in the AM peak and is unchanged in the PM peak.
- 9.42 Accordingly, it is concluded that the junction capacity assessment results summarised above demonstrate that traffic associated with the proposed development will have only a slight impact upon the operation of the local highway network.

### **Pedestrian Delay and Amenity**

- 9.43 As a general rule, an increase in vehicular traffic reduces the time and quantum of acceptable traffic gaps. Accordingly, this will affect the delay incurred by pedestrians seeking to cross roads in the surrounding area, assuming that gap acceptance does not change. The IEMA guidelines recommend that rather than rely on thresholds of pedestrian delay, any assessment should be based on professional judgement to determine whether pedestrian delay is a significant impact.
- 9.44 As previously mentioned the majority of pedestrian movements are likely to be to and from the south as the Primary School, Tesco Supermarket and Town Centre are located in this direction. A pedestrian / cycle link will be provided to connect to the existing residential streets to the south which are generally lightly trafficked and are likely to form the desire line to local services and facilities. These connect through to existing signal controlled crossings of the A433 London Road which provide safe locations at which to cross.
- 9.45 In light of the above it is considered that there will be no increase in pedestrian delay or reduction in pedestrian amenity as the signal controlled crossings stop the traffic irrespective of any increase in flow associated with the proposed Highfield Farm development.

### **Accidents and Safety**

- 9.46 The recorded Personal Injury Accidents are discussed within the baseline conditions section of this chapter. It is difficult to predict with any accuracy the effect of increased traffic on the number of accidents and safety of the highway network. Notwithstanding, as traffic increases

are predicted to be generally less than 10%, the potential for increased accidents is considered 'slight'.

- 9.47 There have only been 36 recorded accidents within the Tetbury study area over the last 5 years with none of these being fatal and only 5 recorded as serious. Given the volume of traffic on the highway network, it is considered unlikely that the projected increases in traffic flows will materially impact on the prevalence of accidents.

### Hazardous Loads

- 9.48 No movement of materials listed in "The Carriage of Dangerous Goods in the UK" are anticipated during the operational or construction phase of the proposed development.

### Mitigation measures

- 9.49 Of significant importance to the mitigation of the proposed development is the Residential Travel Plan. The aim of the Residential Travel Plan is to reduce the reliance on the private motor vehicle and increase the use of more sustainable modes of travel. The Residential Travel Plan will comprise a package of measures to promote use of sustainable transport including:
- Dissemination of sustainable travel information to new residents in the form of a Travel Information Pack;
  - Provision of vouchers towards cycle and public transport season ticket purchase together with the negotiation of discounts on other cycle equipment and bus tickets;
  - Promotion of a site wide car sharing scheme and links to the other existing schemes; and
  - Availability of an individual travel planning visit by the Travel Plan Coordinator for new residents.
- 9.50 The proposed development will also bring enhancements to the local transport infrastructure including:
- Provision of pedestrian and cycle links within the site to provide a permeable network;
  - Provision of pedestrian and cycle links between the site and the existing adjacent residential streets; and
  - Potential extension of public transport services to serve the site.
- 9.51 The above measures are considered appropriate to mitigate against the projected increases in traffic volumes on the local highway network.

### Residual Effects

- 9.52 The distribution of the development-generated traffic results in a slight to moderate adverse impact on the operation of the local off-site junctions, with slight increases in queue lengths and vehicle delays. However, these increases are not anticipated to detrimentally affect the operation of the local highway network or have any long term effects.

- 9.53 Similarly, the increase in traffic flows may lead to a slight increase in the number of accidents recorded. However, the severity of previous accidents is generally low and there are no particular accident 'black spots' where improvements are required.

## Overall Assessment of Impacts

- 9.54 The Table below provides a summary of the impact of development traffic on the five key criteria discussed above:

	Geographical	Duration	Nature	Significance	Mitigation	Residual
Severance	Local	Short Term	Neutral	None	New pedestrian/cycle links to existing residential areas. Travel Plan to reduce additional flows.	None
Driver Delay	Local	Short Term	Neutral	Slight	Travel Plan to reduce additional flows.	Slight increases in queue lengths and driver delay.
Pedestrian / Cyclist Delay	Local	Short Term	Neutral	None	New pedestrian/cycle links to existing residential areas. Travel Plan to reduce additional flows.	None
Accidents & Safety	Local	Short Term	Neutral	Slight	Travel Plan to reduce additional flows.	Potential for slight increases in accident numbers.
Hazardous Loads	Local	N/A	Neutral	N/A	None necessary.	None

# 10. Historic Environment

## Introduction

- 10.1 This chapter deals with the potential effects of the proposed development on cultural heritage resources, including buried archaeological sites, historic buildings and historic landscapes.
- 10.2 These resources could be affected in a number of ways, principally:
- Physical loss of, or damage to, archaeological sites, historic buildings and historic landscapes;
  - Impacts on the settings of significant monuments and buildings; and
  - Effects on the quality and integrity of the overall historic landscape;
  - Legislative and Policy Context; and
  - National Legislation and Policy Guidance.
- 10.3 Statutory protection for archaeological remains is principally enshrined in the *Ancient Monuments and Archaeological Areas Act*, as amended by the *National Heritage Act 11283* and subsequent updates. Nationally important sites are listed in a Schedule of Monuments and are accorded statutory protection. Details of scheduling are held on the list maintained by the Department for Culture, Media and Sport (DCMS).
- 10.4 For other components of the historic environment, the *Planning (Listed Buildings and Conservation Areas) Act* amends the *Town and Country Planning Act* and provides statutory protection to Listed Buildings and a control to preserve the character and appearance of Conservation Areas.
- 10.5 The *Hedgerow Regulations* includes guidelines that aim to protect hedgerows that have been assessed as 'important' in terms of criteria that include historical elements. Developments that would require the removal of any part of an 'important' hedgerow require a consent from the Local Planning Authority.
- 10.6 *Planning Policy Statement 5 : Planning for the Historic Environment* provides advice concerning the safeguarding of archaeological interests within the planning process. It recognises that archaeological remains are an irreplaceable and finite resource that should be preserved, along with their settings. In situations where remains are threatened by development and where preservation in situ is not justified, the developer should make provision for appropriate investigation and recording of the remains.
- 10.7 Importantly PPS5 emphasises the need for expert input at the earliest stage, particularly through pre-application enquiries to local planning authorities. It makes clear that LPAs need to have access to a Historic Environment Record to inform planning decisions, supplemented

with site specific assessments of the 'significance' (in terms of the historic environment), of what is there now and the impact of the proposed development upon it.

## Development Plan

- 10.8 The current development plan for the area, Cotswold District Local Plan (CDC 2001-2011), gives consideration to cultural heritage resources in Section 2.4. The diversity of the archaeological heritage of the district is acknowledged and the policies state that where archaeological sites of national importance may be affected by development, preservation in situ of the archaeological remains will be required, along with the protection of the setting of any visible remains of national significance (Policy 12 – See Appendix 1). Where archaeological remains of less than national significance are affected, the District Council will weigh the importance of the remains against the need for the development.
- 10.9 A further policy (Policy 13), deals with development affecting a listed building or its setting. Developments that would harm the character or setting of a listed building will not be permitted, and the Local Plan confirms that where the special setting of a listed building is considered to be vulnerable, the Council may consider the imposition of an Article 4 Direction to control any potentially damaging development. However, the Secretary of State directed on 19 January 2009 that Policies 12 & 13 will not be saved with effect from the 25th April 2009.

## Consultation

- 10.10 Initial consultation was sought by inviting comment from Statutory and non- statutory consultees upon the Planning Officer Advice Note issued in October 2009 (see Appendix 2).
- 10.11 English Heritage highlighted the need to consult with all relevant cultural heritage stakeholders, including Cotswold District Council, in a letter dated 26 July 2010. The proposed development was subsequently discussed with the Conservation Officer. English Heritage advised that particular issues that should be addressed in the Environmental Assessment include the setting of the adjacent listed building, (See copy letter dated 26 July 2010; see Appendix 3).
- 10.12 The Senior Archaeological Officer (Mr C Parry), at GCC was consulted over the programme of archaeological evaluation and the subsequent *Written Scheme of Investigation (WSI)*. Copies of the completed studies were sent to the same officer in September 2010 for comment. A copy of this chapter was also sent to the Senior Archaeological Officer (Mr C Parry) at GCC for comment.
- 10.13 The History of Tetbury Society were consulted on 31 March 2010. They highlighted their main comments on the development scheme and the past history of the site. It was highlighted from local records that throughout the 20<sup>th</sup> Century the land was farmed by the Ind Family who were cattle dealers and milk suppliers.

## Methodology

- 10.14 The basis of the methodology has been to collate all available information from within the defined study area in order to identify known and potential resources. The importance or value of each resource is assessed and the likely magnitude of impact upon them is considered using recognised methodologies (where such exist).
- 10.15 Using a matrix that measures both resource value and impact magnitude produces an assessment of the significance of the effect of the proposed scheme on each resource. Potential mitigation measures to reduce impact magnitude are then discussed.
- 10.16 The objectives of the evaluation are to assist CDC in making an informed judgement on the significance of the archaeological resource, and the likely impact upon it of the proposed development.

## Data Collection

- 10.17 In accordance with the definition of a Desk-based Assessment described in the Institute of Field Archaeologists' *Standard and Guidance for Archaeological Desk Based Assessment* (as amended), the baseline data was collected with regard to known and potential cultural heritage resources within specified study areas centred on the proposal site. As mentioned the DBA was compiled by Gloucestershire County Council Archaeological Service (GCCAS) in 2002.
- 10.18 The types of cultural heritage resource that have been sought include:
- Internationally and nationally designated resources such as World Heritage Sites, Scheduled Monuments, Listed Buildings, Registered Historic Battlefields, Registered Parks and Gardens of Special Historic Interest;
  - Locally designated resources such as locally listed Buildings, locally identified Historic Parks and Gardens, Conservation Areas, Areas of Archaeological Potential (or similar);
  - Non-designated resources such as buried archaeological remains and other sites recorded on the Gloucestershire Historic Environment Record (Gloucestershire County Council), sites of former buildings or other features recorded on historic maps of the area or in primary and secondary documentary sources; and
  - The overall historic landscape.
- 10.19 The study areas for each type of cultural heritage resource was restricted to the application site and agreed with the Senior Archaeological Officer at Gloucestershire County Council and the Planning Department at Cotswold District Council.
- 10.20 For designated cultural heritage resources of international and national significance, (World Heritage Sites, Scheduled Monuments, Listed Buildings Grade I and II\*, Registered Parks and Gardens of Special Historic Interest Grade I and II\*, Registered Battlefields), the study area is centred on the proposal site, (see figure 10.2). Only those receptors that fall within the

identified Zone of Visual Influence (ZVI) have been identified and described. None have been identified.

- 10.21 For designated historic environment resources of regional and local significance, (Conservation Areas, Listed Buildings Grade II, Registered Parks and Gardens of special Historic Interest Grade II, locally designated Parks and Gardens, locally listed buildings, locally identified historic landscape areas), the study area is centred on the proposal site (see figure 10.3). Only those receptors that fall within the identified ZVI have been identified and described.
- 10.22 For buried archaeological sites that are recorded on the Gloucestershire County Sites and Monuments Record but not otherwise designated, the study area is centred on the proposal site (see figure 10.1). This will enable assessment of the archaeological potential of the proposal site.
- 10.23 Supplementary data has been gathered through a reconnaissance field survey of the proposal site in order to provide information on the archaeological potential of the area. This survey was aimed at:
- Assessing and validating data collected as part of the desk-based assessment;
  - Identifying the extent and condition of any visible archaeological monuments, including any not previously recorded;
  - Assessing the topography and geomorphology of the proposal site; and
  - Informing an assessment of the site's context within the wider historic landscape.
- 10.24 A number of sources were consulted for the desk-based assessment of the proposed development, principally:
- The Gloucestershire County Sites and Monuments record held by Gloucestershire County Council;
  - The Gloucestershire County Record Office, Gloucester; and
  - The National Library of Aerial Photographs, part of the National Monuments Record (English Heritage).
- 10.25 Other sources are listed in the Bibliography or identified within the report.
- 10.26 The extent to which archaeological remains actually survive within a site can depend greatly on previous use, so the destructive effect of the previous and current activities has been assessed from a study of available information.
- 10.27 An archaeological evaluation was undertaken by Cotswold Archaeology in July and August 2010 centred on NGR: ST 8941 9418 (the application site). The programme of archaeological evaluation was carried out in accordance with a recommendation by Mr Charles Parry, Senior Archaeological Officer, Gloucestershire County Council (GCC), the archaeological advisor to CDC, and with a subsequent detailed *Written Scheme of Investigation* (WSI) produced by CA (2010) and approved by Mr Parry. The fieldwork also followed the *Standard and Guidance for Archaeological Field Evaluation* (IfA 2008), the *Statement of Standards and Practices*

*Appropriate for Archaeological Fieldwork in Gloucestershire*, (GCC 1995), the *Management of Archaeological Projects* (English Heritage 1991), and the *Management of Research Projects in the Historic Environment (MORPHE): Project Manager's Guide* (EH 2006).

- 10.28 A total of 39 trenches were excavated. A copy of the Cotswold Archaeology report on the archaeological evaluation is attached (See CA Report No 101024). The earliest artifact encountered consisted of a flint core, of probable Mesolithic date, recovered from the subsoil. Evidence of Late Iron Age/Early Roman activity was identified confirming the potential presence of a small enclosure identified by the earlier geophysical survey.

## **Assessment of Resource Importance (Value) – Archaeological Remains**

- 10.29 There are no national government guidelines for evaluating the importance or significance, (and hence the 'value' of cultural heritage resources). For archaeological remains, English Heritage has proposed a series of recommended, (i.e. non-statutory), criteria for use in the determination of *national* importance when scheduling ancient monuments. The criteria include period, rarity, documentation, group value, survival / condition, fragility / vulnerability, diversity and potential, and can be used as a basis for the assessment of the importance of historic remains and archaeological sites. However the annex also states that *'these criteria should not be regarded as definitive ..... rather they are indicators which contribute to a wider judgement based on the individual circumstances of a case'*.
- 10.30 The criteria described above could be used as a basis for the assessment of the importance of archaeological remains of less than national significance. However the categories of regional and district / local importance are less clearly established than that of national, and implicitly relate to local, district and regional priorities which themselves will be varied within and between regions.
- 10.31 Local, district and regional research agenda may be available, and local or structure plans may also help.
- 10.32 Clearly a high degree of professional judgement is necessary, guided by acknowledged standards, designations and priorities. It is also important to understand that buried archaeological remains may not be well-understood at the time of assessment, and can therefore be of uncertain value.
- 10.33 The most recent guidance from any national agency regarding cultural heritage and Environmental Impact Assessment is from the Highways Agency, and is expressed in Guidance Note 208/07 (August 2007), that now forms part of the Design Manual for Roads and Bridges (DMRB, Volume II, section 3, part 2).
- 10.34 Guidance Note 208/07 provides the following table as a guide for assessing the value of archaeological resources:

**Table 10.1 Factors for assessing the value of archaeological assets**

## Very High

- World Heritage Sites
- Assets of acknowledged international importance
- Assets that can contribute significantly to acknowledged international research objectives

## High

- Scheduled Monuments
- Undesignated assets of schedulable quality and importance
- Assets that can contribute significantly to acknowledged national research objectives

## Medium

- Designated or undesignated assets that contribute to regional research objectives

## Low

- Undesignated assets of local importance
- Assets compromised by poor preservation and/or poor survival of contextual associations
- Assets of limited value, but with potential to contribute to local research objectives

## Negligible

- Assets with very little or no surviving archaeological interest
- Unknown
- The importance of the resource cannot be ascertained

## Assessment of Resource Importance (Value) – Historic Buildings

10.35 For historic buildings, assessment of importance is usually based on the designations used in the Listed Building process. However where historic buildings are not listed, or where the listing grade may be in need of updating, professional judgement will be required.

10.36 The criteria used in establishing the value of historic buildings within the listing procedure include architectural interest, historic interest, close historic association, (with nationally important people or events), and group value. Age and rarity are also taken into account; in general (where surviving in original or near-original condition), all buildings of pre-1700 date are listed, most of 1700-1840 date are listed, those of 1840 date are more selectively listed, and thereafter even more selectively. Specific criteria have been developed for buildings of 20<sup>th</sup> century date.

10.37 At a local level, buildings may be valued for their association with local events and people or for their role in the community.

10.38 Guidance Note 208/07 provides the following table as a guide for evaluating the value of historic buildings:

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**Table 10.2 Guide for establishing the value of historic buildings**

Very High

- Standing buildings inscribed as of universal importance as World Heritage Sites
- Other buildings of recognised international importance

High

- Scheduled Monuments with standing remains
- Grade I and II\* Listed buildings
- Other listed buildings that can be shown to have exceptional qualities in their fabric or historical association not adequately reflected in the listing grade
- Conservation Areas containing very important buildings
- Undesignated structures of clear national importance

Medium

- Grade II Listed Buildings
- Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical association
- Conservation Areas containing important buildings
- Historic Townscape or built-up areas with historic integrity in their buildings, or built settings (e.g. including street furniture and other structures)

Low

- 'Locally listed' buildings
- Historic (unlisted) buildings of modest quality in their fabric or historical association
- Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures)

Negligible

- Buildings of no architectural or historic note; buildings of an intrusive character

Unknown

- Buildings with some hidden (i.e. inaccessible) potential for historic significance

## Assessment of Resource Importance (Value) – Historic Landscape

- 10.39 The sub-topic of Historic Landscape is recognised as having significant overlaps with other topics such as Landscape and Visual Appraisal, and a multi-disciplinary approach to assessment is required. This is partially to avoid double-counting. There are also significant overlaps with other Cultural Heritage sub-topics; Archaeological Remains and Historic Buildings.
- 10.40 The elements that are considered within those two sub-topics can make significant contributions to the historic landscape, and this latter subtopic should concentrate on the overall historic landscape character and its value rather than the individual elements within it.
- 10.41 All landscapes have some level of historic significance, as all of the present appearance of the urban and rural parts of England is the result of human or human-influenced activities overlain on the physical parameters of climate, geography and geology.
- 10.42 There are number of designations that can apply to historic landscapes, including World Heritage Sites (inscribed for their historic landscape value), Registered Parks and Gardens of Special Historic Interest, Registered Historic Battlefields, and Conservation Areas. Some local plans include locally designated Historic Landscape Areas, and Historic Parks and Gardens (or similar).
- 10.43 A model has been produced by the Council for British Archaeology whereby the historic landscape can be divided up into units that are scaled, from smallest to largest, as follows:
- Elements – individual features such as earthworks, structures, hedges, woods etc;
  - Parcels – elements combined to produce, for example farmsteads or fields;
  - Components – larger agglomerations of parcels, such as dispersed settlements or straight-sided field systems;
  - Types – distinctive and repeated combinations of components defining generic historic landscapes such as ancient woodlands or parliamentary enclosure;
  - Zones – characteristic combinations of types, such as Anciently Enclosed Land or Moorland and Rough Grazing;
  - Sub-regions – distinguished on the basis of their unique combination of interrelated components, types and zones; and
  - Regions – areas sharing an overall consistency over large geographical tracts.
- 10.44 The model described above can be used as the principal part of the overall assessment usually known as Historic Landscape Characterisation (HLC). However, although HLC has been undertaken for much of England, there is no significant guidance or advice regarding the attribution of significance or value to identified historic landscape units.
- 10.45 Guidance Note 208/07 provides the following table as a guide for evaluating the value of historic landscape units:

**Table 10.3 : Guide for evaluating Historic Landscape Character units**

Very High

- World Heritage Sites inscribed for their historic landscape qualities
- Historic landscape of international sensitivity, whether designated or not
- Extremely well-preserved historic landscapes with exceptional coherence, time-depth, or other critical factor(s).

High

- Designated historic landscapes of outstanding interest
- Undesignated landscapes of outstanding interest
- Undesignated landscapes of high quality and importance, and of demonstrable national sensitivity
- Well-preserved historic landscapes exhibiting exceptional coherence, time-depth, or other critical factor(s)

Medium

- Designated special historic landscapes
- Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional sensitivity
- Averagely well-preserved historic landscapes with reasonable coherence, time-depth, or other critical factor(s)

Low

- Robust undesignated historic landscapes
- Historic landscapes with specific and substantial importance to local interest groups, but with limited sensitivity
- Historic landscapes whose sensitivity is limited by poor preservation and/or poor survival of contextual associations
- Robust historic landscapes

Negligible

- Landscapes with little or no significant historical interest

## Assessment of Impact Magnitude – Archaeological Remains

10.46 The magnitude of impact is assessed without regard to the value of the resource. In terms of the judgement of the magnitude of impact, this is based on the principle (established in PPG16) that preservation of the resource is preferred, and that total physical loss of the resource is the least preferred.

10.47 It is not always possible to assess the physical impact in terms of percentage loss, and therefore it can be important in such cases to try to assess the capacity of the resource to retain its character following any impact. Similarly, impacts on the setting of archaeological remains may also be more difficult to assess as they do not involve physical loss of the resource and may actually be reversible.

10.48 Additional methodology regarding the assessment of effects on settings is provided below.

10.49 Impact scales are defined thus:

- Major;
  - Change to most or all key archaeological elements, such that the resource is totally altered. Comprehensive changes to setting.
- Moderate;
  - Changes to many key archaeological elements, such that the resource is clearly modified. Considerable changes to setting.
- Minor;
  - Changes to key archaeological elements, such that the asset is slightly altered. Slight changes to setting.
- Negligible;
  - Very minor changes to elements or setting.
- No change;
  - No change.

## **Assessment of Impact Magnitude – Historic Buildings**

10.50 The magnitude of impact is assessed without regard to the value of the resource, so the total destruction of an insignificant building has the same degree of impact as the total loss of a high value building. In terms of the judgement of the magnitude of impact, this is based on the principle that preservation of the resource and its setting is preferred, and that total physical loss of the resource is the least preferred.

10.51 Impacts on the setting of historic buildings may include vibration, noise and lighting issues as well as visual impacts, and may be reversible. Additional methodology regarding the assessment of effects on settings is provided below.

10.52 Impact scales are defined thus:

- Major;
  - Change to key historic building elements, such that the resource is totally altered.
  - Total change to the setting.
- Moderate;

- Change to many key historic building elements, such that the resource is significantly modified. Changes to the setting of an historic building, such that it is significantly modified.
- Minor;
  - Changes to key historic building elements, such that the asset is slightly different.
  - Change to setting of an historic building, such that it is noticeably changed.
- Negligible;
  - Slight changes to historic buildings elements or setting that hardly affect it.
- No change;
  - No change to fabric or setting.

### Assessment of Impact Magnitude – Historic Landscape

10.53 Historic landscapes cannot be destroyed or damaged but impacts on them can change their character. Impacts should be assessed using evaluated historic landscape character units, not the elements/parcels/components that contribute towards the character (see above). There may be impacts on the setting of identified units, especially with regard to designated historic landscapes. Additional methodology regarding the assessment of effects on settings is provided below.

10.54 Impact scales are defined thus:

- Major;
  - Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit.
- Moderate;
  - Changes to many key historic landscape elements, parcels or components; visual change to many key aspects of the historic landscape; noticeable differences in noise or sound quality; considerable changes to use or access; resulting in moderate changes to historic landscape character.
- Minor;
  - Changes to few key historic landscape elements, parcels or components; slight visual changes to few key aspects of historic landscape; limited changes to noise levels or sound quality; slight changes to use or access; resulting in limited changes to historic landscape character.
- Negligible;
  - Very minor changes to key historic landscape elements, parcels or components; virtually unchanged visual effects; very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in a very small change to historic landscape character.

- No change;
  - No change to elements, parcels or components; no visual or audible changes; no changes arising from amenity or community factors.

## Significance of Effects

- 10.55 The significance of effects is a combination of the value of the resource or asset and the magnitude of impact on that resource or asset. Effects can be adverse or beneficial. Beneficial effects are those that mitigate existing impacts and help to restore or enhance heritage assets, therefore allowing for greater understanding and appreciation.

## Magnitude of Impact

- 10.56 Where the magnitude of impact provides a split in the significance of effects, e.g. Moderate/Slight, the assessor will exercise professional judgement in determining which of the levels of significance is more appropriate.
- 10.57 Moderate or greater effects are considered to be significant.

## Settings

- 10.58 The issues surrounding the identification of the 'setting' of cultural heritage features, and the nature and magnitude of impacts and consequently effects on such 'settings', have been subject to much recent debate within the historic environment profession. Legislation and guidance makes reference to the desirability of preserving or not adversely affecting 'settings', but the term has never really been clearly defined.
- 10.59 While change within the setting of historic sites may often be acceptable, in certain instances development will be considered inappropriate. Among particular factors which should be borne in mind when assessing the acceptability of developments within the setting of historic sites are:
- Visual dominance: Tall buildings are far greater in vertical scale than most historic features. Where an historic feature, (such as a hilltop monument or fortification, a church spire, or a plantation belonging to a designed landscape), is the most visually dominant feature in the surrounding landscape, adjacent construction of tall buildings may be inappropriate.
  - Scale: The extent of a tall building and the number, density and disposition of its associated buildings and infrastructure will also contribute to its visual impact.
  - Intervisibility: Certain archaeological or historic landscape features were intended to be seen from other historic sites.
  - Vistas and sight-lines: Designed landscapes invariably involve key vistas, prospects, panoramas and sight-lines, or the use of topography to add drama.

- Movement, sound or light effects: Adequate distance should always be provided between important historic sites and development to avoid the site being overshadowed or affected by noise.
  - Unaltered settings: The setting of some historic sites may be little altered from the period when the site was first constructed, used or abandoned. Largely unaltered settings for certain types of sites, particularly more ancient sites, may be rare survivals and especially vulnerable to modern intrusions. This may be a particular issue in certain upland areas.
- 10.60 More recently English Heritage published a document entitled '*Conservation Principles – Policies and guidance for the sustainable management of the management of the historic environment*' (February 2007 – second draft) and this provided some actual definitions and principles regarding settings. Of particular note is the following:
- 'Setting' is an established concept that relates primarily to the surroundings in which a place is experienced, while embracing an understanding of perceptible evidence of the past in the present landscape. Definition of the setting of a significant place will normally be guided by the extent to which material change within it could affect, (enhance or diminish), the place's significance.
  - 'Context' embraces any relationship between a place and other places.
- 10.61 One of the more significant issues raised by the definition provided above is the idea of 'perception', i.e. how the historic site is viewed (and enjoyed) by people seeing or actually visiting the site. The procedure explained below and employed in this report aims to combine an objective assessment of visual impacts on the setting of a monument or designated area with a judgment of the 'amenity value' of the monument.
- 10.62 An assessment of combined visual impact and amenity value therefore requires consideration of the broader landscape and historical context of a cultural heritage resource. Thus, while the existence of direct lines of sight between the feature and the proposed development is an important factor in judging the visual impact of the development, it is possible for its setting to be affected even when such a relationship does not exist. For example, views of a listed building from a frequently visited location, such as a park or a road, may be affected by the presence of additional development, even if it is not visible from the building itself.
- 10.63 Conversely, the use of these combined criteria means that although the proposal may have a clear visual impact, the overall effect on the setting of the resource may be lessened if the resource has little or no amenity value.
- 10.64 A key tool in making these assessments is the computer-generated ZVI (Zone of Visual Influence), which models those areas in the surrounding landscape from where there will be direct lines of sight, however slight, to the proposed development. The model is constructed to take account of vegetation, forestry and built form. Further details regarding the establishment of the ZVI are presented in Chapter 6.
- 10.65 However – as described above – there may be effects on settings even when there is no direct sight line between the cultural heritage resource and the proposed development. For

this reason it can be important to consider views towards significant cultural heritage features that are actually outside the ZVI.

- 10.66 An assessment of visual impacts on the cultural heritage features and their settings needs to take into account a wide variety of factors including the location of the resource within the physical landscape, its relationship with contemporary and non-contemporary features within that landscape and the location, size and character of the proposed development in relation to these factors. The assessment needs to take into account and balance the impact of these various considerations on the basis of informed professional judgment. This assessment of visual impacts is undertaken in accordance with the procedures expressed in the *Guidelines for Landscape and Visual Impact Assessment* (The Landscape Institute with the Institute of Environmental Management and Assessment, Second Edition, 2002).
- 10.67 Appraisal of the 'amenity value' of a cultural heritage resource includes considerations of the extent to which the resource in question is known and appreciated; whether it is regularly visited by members of the public; and the degree to which views of the resource from areas and points of public access will be affected by the proposed development. The levels are set as:
- low – meaning the resource is little known, hard to access and not a significant visual feature in the historic landscape;
  - restricted – refers to a resource that is little known but is accessible to public view;
  - notable – refers to a known resource that is accessible to public access but has limited numbers of visitors and/or is a feature of only moderate visual significant in the historic landscape;
  - prominent – refers to a well-known resource that sees significant numbers of visitors and/or is an important element of the historic landscape.
- 10.68 In the table below, the overall effect of the proposed development on the settings of significant cultural heritage resources is evaluated by combining the assessment of the magnitude of visual impact on the setting of the resource (as indicated in Table 5 above), with its amenity value. This table is not designed as an absolute predictive tool, but to make the professional judgements contained within this report as transparent as possible. Where the table gives two possible outcomes, e.g. Moderate / Slight, the allocation of one of these outcomes is made by the assessor on the basis of the individual circumstances of the resource, the visual impact and the amenity value, using professional judgement and expertise.
- 10.69 For example, a moderate visual impact on the setting of a prominent resource would result in a Slight or Moderate effect on the setting, and the assessor would decide which one of these is the most appropriate.

## Baseline Data

### Geology

- 10.70 British Geological Survey Solid & Drift Sheets No 251 1970 Edition Malmesbury indicates that the site is underlain by Jurassic Series (middle) of the Great Oolite and Forest Marble strata. In detail these are limestone bands and skerries interspersed by shelly oolite (Acton Tidville Beds), with shelly limestone.

### Topography and Hydrology

- 10.71 The application site lies on a steady downward slope from north west to south east of approximately 10 m. The catchment is well drained with a main stream to the south with an absence of defined dendritic channels or surface water features.
- 10.72 The overriding hydrogeology from Ordnance Survey & British Geological Survey data is dominated by the skerries supporting springs and aquicludes, recharged from intercepted surface water. Many of these will be short lived. Percolations tests undertaken in accordance with Building Research Establishment's
- 10.73 Digest 365: Soakaway Design showed that a low but adequate soakage rate could be achieved in the eastern part of the site within the limestone shale but the remainder could be classed as impermeable.

### Cultural Heritage

- 10.74 Data for the compilation of the cultural heritage baseline have been gathered from the following sources:
- The Gloucestershire Sites and Monuments Record, maintained by Gloucestershire County Council;
  - The National Monuments Records (maintained by English Heritage);
  - The Gloucestershire County Record Office;
  - Consultation with the Senior Archaeologist and Conservation Officers at Gloucestershire County Council;
  - Aerial photographs held by Gloucestershire County Council, and by the National Library of Air Photographs;
  - The Register of Parks and Gardens of Special Historic Interest (English Heritage);
  - The Register of Historic Battlefields (English Heritage);
- 10.75 The study areas were proposed in the Scoping Report. For buried archaeological sites, whether designated or not, the defined study area is the proposal site. This enables assessment of the archaeological potential of the proposal site; the proposed development is all located on land previously subject to agricultural practices, therefore buried archaeological remains will survive at these locations, however associated infrastructure including construction roads may well impact upon areas that have not been subject to extraction.

- 10.76 For designated historic environment resources of international and national significance (World Heritage Sites, Scheduled Monuments, Listed Buildings Grade I and II\*, Registered Parks and Gardens of Special Historic Interest, Registered Battlefields), the study area is a circle of 10 km radius centred on the proposal site. Resources falling just outside this 10 km radius have also been assessed. Only those receptors that fall within the identified Zone of Visual Influence (ZVI) have been described.
- 10.77 For designated historic environment resources of regional and local significance (Conservation Areas, Listed Buildings Grade II, locally designated Parks and Gardens, locally listed buildings, locally identified historic landscape areas), the study area is a circle of 3 km radius centred on the proposal site. Only those receptors that fall within the identified ZVI have been described.
- 10.78 The following descriptions make reference to sites and features of historic environment significance. The locations of these sites and features are marked on figures 10.1 to 10.3, and further details are provided in Appendix 10.1.

**Figure 10.76: Plan of Desk Based Assessment**

Figure 10.76: Plan of Desk Based Assessment		

### Grade II Listed Buildings – Medium Value

- 10.79 There is a single Grade II listed building (ST8957194256/ 1985;5/333) within the defined study area, i.e. within a 0.5 km radius of the proposal site and within the ZVI. Designation records have been reviewed. The affected building is Highfield Farmhouse (See Figure ADA Ref 2440-26). Highfield Farmhouse, to the immediate north of the study area, dates back to the late 17th century, with late 18<sup>th</sup>/early 19<sup>th</sup> century additions. The building is a single range with a rear wing and consists of two storeys and an attic.
- 10.80 Highfield Farmhouse is visible in the street scene through a defined vista from London Road (A433). In this regard the building contributes to local character and sense of place. The Farmhouse is an isolated property which is not interlinked with other buildings nearby or at some distance from it. However the Farmhouse is visible from restricted vantage points on public footpath (Ref No. NTU/8/1) passing to the east of the Listed Building. As confirmed in the Landscape and Visual Assessment (Chapter 6) it is not widely visible in the wider AONB landscape.
- 10.81 The rear garden of the Highfield Farmhouse is enclosed by a high stone wall with well established tree planting along the gardens southern boundary. Viewpoints to the rear elevation of the Farmhouse which could determine the extent of its setting are restricted by a recent residential redevelopment/conversion of non- listed buildings, (1-5 Mews Cottages).

Whilst views to the rear of Highfield Farmhouse are not judged to be significant they have been considered in the context of the design concept.

- 10.82 Most importantly the design concept for the proposed development seeks to 'place-shape' by maintaining the strong visual connection of the listed building with London Road. In this regard the existing open vista to the frontage of the property has been specifically maintained as part of the scheme. This reflects the positive contribution this building makes to the character and local distinctiveness of the adjoining area. The associated consideration in the concept design has included consideration of scale, height, massing, alignment, materials and use.
- 10.83 Adjoining buildings have been designed to reflect their location within the setting of Highfield Farmhouse. There will be no physical impacts on this Listed Building, (ST8957194256), nor associated buildings within its curtilage as a result of this proposal. Likely effects on the setting of this historic building have been assessed and are described below.
- 10.84 The western viewpoint of Highfield Farmhouse from London Road is the principal elevation, (main façade), which contributes to the local scene and sense of place. It provides one of the clearest publicly accessible views. In this regard Highfield Farmhouse is considered to have an amenity value due to its contribution to the historic landscape, (Cotswold AONB), local street scene and the overall effect on its setting has been assessed as moderate adverse. The public footpath, (Ref No. NTU/8/1), passing to the east of the Listed Building will continue to enjoy unimpeded views of Highfield Farmhouse from the east.
- 10.85 Highfield Farmhouse is currently used as a residential property. It is intended that Highfield Farmhouse will continue to be put to its existing 'appropriate and viable' use under the proposed scheme. This is consistent with its conservation.
- 10.86 The extent of the visual impact of the proposed development on this listed building will be very similar to that shown on photoviewpoints 1, 2, 31 & 32 and described in Chapter 6; Landscape and Visual.
- 10.87 Proposed frontage buildings in the vicinity of the farmhouse will appear within the setting of the listed building but the disposition of associated buildings ensures that the vista to London Road will be maintained. The frontage setting will noticeably change under the intended development, (minor impact). Frontage buildings will screen the existing vertical elements represented by the Audi Showroom and the associated lighting columns that illuminate the roundabout on the main entrance to the application site.
- 10.88 In general terms the eastern part of the site is visible from along approximately 600m of the A433 London Road at the point where the road runs alongside the eastern site boundary. Existing boundary tree planting filters view westwards across the site. The central hedgerow within the site restricts views of land to the west of Highfield Farm. Development of the site as proposed would result in the introduction of built form along the eastern site boundary and the design intention is that new housing would address the London Road but be set back behind a landscaped strip accommodating existing and new tree planting.

10.89 The A433 road is a major route into Tetbury and a significant number of road users would experience a notable and permanent change in view with a loss of existing filtered views across open land. There is currently no footway along this section of road and visual receptors will generally be travelling at speed and the impacts will occur over a short section of road. The retention of existing boundary trees and new tree planting would partially mitigate the visual impact of new built form, however changes to the view would be permanent and development would become a dominant element in the view. For these reasons the potential visual impact is assessed as substantial. As previously noted however, it is anticipated that visual impacts associated with the creation of an improved northern approach into Tetbury would be positive rather than negative.

## Archaeological Interest

- 10.90 The geophysical survey identified anomalies suggestive of a potential ditch- defined enclosure and associated features in the central part of the site, potential pits/areas of burning in the northern and eastern parts of the site, potential ditches across the site and the remains of ridge and furrow earthworks across the site.
- 10.91 The archaeological evaluation targeted these anomalies, together with blank areas, and a number were found to relate to archaeological features. Within the eastern part of the site there was a strong correlation with the results of the geophysical survey. However within the western part of the site the investigation of geophysical anomalies in a number of trenches revealed no archaeological features. Many of these anomalies did however appear to correspond to abrupt changes within the natural substrate from areas of sandy clay to outcrops of limestone.
- 10.92 The earliest artifact encountered consisted of a flint core, of probable Mesolithic date, recovered from the subsoil in Trench 32. No corresponding archaeological features were identified. The value of any such residual artifactual material present in the subsoil of the site is considered to be low. The area of this find is located within proposed Housing Zone 4. Groundworks associated with construction would potentially remove this resource which, if unmitigated, would be a major impact of slight adverse significance.
- 10.93 Evidence of Late Iron Age/Early Roman activity was identified in Trench 16, where a ditch containing pottery dating to the 1st century AD, would appear to confirm the presence of a small enclosure identified by the earlier geophysical survey. A shallow, undated ditch, probably forming part of the same enclosure was identified in Trench 17a. This small area of Late Iron Age/Early Roman activity is considered to be a heritage asset of low value. The area of the Late Iron Age/Early Roman enclosure is located within proposed Housing Zone 3. Groundworks associated with construction would potentially remove this resource which, if unmitigated, would be a major impact of moderate adverse significance.
- 10.94 Later Roman activity was identified in Trench 8 where a large pit, probably relating to quarrying, contained pottery dating to the 3rd to 4th centuries AD. Two further undated pits of similar size and character were identified in Trenches 8 and 9. This small area of activity is considered to be a heritage asset of low value. The area of the Later Roman quarrying activity

is located within proposed Housing Zone 1. Groundworks associated with construction would potentially remove this resource which, if unmitigated, would be a major impact of moderate adverse significance.

- 10.95 A pit dating to the medieval period was identified in Trench 16. This small area of probable agricultural activity is considered to be a heritage asset of negligible value. This small area of activity is located within proposed Housing Zone 3. Groundworks associated with construction would potentially remove this resource which, if unmitigated, would be a major impact of slight adverse significance.
- 10.96 Probable post-medieval/modern features relating to water and/or landscape management were identified in Trenches 22, 37 and 40. These areas of recent agricultural activity are considered to be heritage assets of negligible value. These areas are located within proposed Housing Zone 3, (Trench 22), and proposed Housing Zone 6, (Trenches 37 and 40). Groundworks associated with construction would potentially disturb this resource which, if unmitigated, would be a major impact of slight adverse significance.
- 10.97 Post-medieval/modern features relating to agricultural activity or land division were identified in Trenches 12, 17b and 19. These areas of recent agricultural activity are considered to be heritage assets of negligible value. These areas are located within proposed Housing Zone 1, (Trenches 12 and 19), and proposed Housing Zone 3, (Trench 17). Groundworks associated with construction would potentially disturb this resource which, if unmitigated, would be a major impact of slight adverse significance.
- 10.98 Undated pits and ditches were identified in Trenches 6, 14, 16 and 35. These areas of undated activity are considered to be heritage assets of negligible value. These areas of undated activity are located within the proposed Access Road, (Trench 6), proposed Housing Zone 2, (Trench 14), proposed Housing Zone 3, (Trench 16), and proposed Boundary Reinforcement Planting, (Trench 35). Groundworks associated with construction would potentially disturb this resource which, if unmitigated, would be a major impact of slight adverse significance.

### Historic Landscape

- 10.99 There are no designated Park and Garden of Special Historic Interest within the study area. Whilst the proposed development will not be visible from the Conservation Area at Tetbury, the Cotswold Area Of Outstanding Natural Beauty (AONB), covers the entire town of Tetbury and its environs.
- 10.100 The proposed development will have a minor impact on the historic landscape units identified as 'open ground' and 'water association, water meadows'. This will result in slight adverse effects. There would also be a minor negative impact on other the historic landscape units identified, but as these are of low or negligible value the effects would be neutral.

### Mitigation

- 10.101 No mitigation is proposed with regard to effects on the setting of cultural heritage resources.

- 10.102 Where construction activities have the potential to cause adverse effects on buried archaeological remains, a programme of archaeological investigation/recording will be implemented. This will be agreed with the Senior Archaeologist at Gloucestershire County Council before work commences.
- 10.103 The aim of the archaeological mitigation strategy will be to ensure that where it is not possible to preserve archaeological remains within the proposed development, any remains that are to be disturbed are subject to thorough recording, partially offsetting their loss through the knowledge gained through investigation. However, as cultural heritage is a finite resource and cannot be directly replaced, a residual minor impact will remain.
- 10.104 For the Mesolithic material in the subsoil, the Iron Age or Romano-British enclosure, and Late Roman quarrying activity, which are considered to be of low value, the significance of this residual minor impact would be neutral.
- 10.105 For the medieval pit, undated pits and post-medieval/modern land division or water management features, which are considered to be of negligible value, the significance of this residual minor impact would be neutral.

## Cumulative

- 10.106 There would be no cumulative impacts of effects on any historic environment resource.

## Summary

- 10.107 The proposed residential development at Highfield Farm would not directly affect the physical fabric of any designated historic environment asset. There would be moderate adverse effects on the setting of one Grade II listed building. These impacts would be mitigated
- 10.108 There would also be slight adverse effects on the one identified historical landscape character units and possibly on buried archaeological remains.
- 10.109 Where construction activities have the potential to cause adverse effects on buried archaeological remains, a programme of archaeological investigation/recording will be implemented. Following mitigation, no significant impacts on the archaeological resource are anticipated.

**Table 10.4 Overall Assessment of Impacts**

The Table below provides a summary of the impact of development traffic on the five key criteria discussed above;

	Geographical	Duration	Nature	Significance	Mitigation	Residual
Severance	Local	Short Term	Neutral	None	New pedestrian/cycle links to existing residential areas. Travel Plan to reduce additional flows.	None
Driver Delay	Local	Short	Neutral	Slight	Travel Plan to reduce	Slight

## 10. Historic Environment

		Term			additional flows.	increases in queue lengths and driver delay.
Pedestrian / Cyclist Delay	Local	Short Term	Neutral	None	New pedestrian/cycle links to existing residential areas. Travel Plan to reduce additional flows.	None
Accidents & Safety	Local	Short Term	Neutral	Slight	Travel Plan to reduce additional flows.	Potential for slight increases in accident numbers.
Hazardous Loads	Local	N/A	Neutral	N/A	None necessary.	None

# 11. Noise

## Introduction

- 11.1 This chapter reports on the noise impact assessment of the land adjoining Highfield Farm, Tetbury. The assessment is in two parts:
- A. Off-site noise affecting the development;
  - B. Predicted noise impact of the development on the surrounding area.
- 11.2 Cotswold District Council, (CDC), Environmental Health Officer Ray Brasington has confirmed that with regard to noise, CDC's main concern over the suitability of the site for residential development is off-site noise affecting the proposed housing. Part A of this assessment elaborates this subject.
- 11.3 The text is divided into the following sections:
- Overview of the development
  - Part A: Off-site noise affecting the development:
    - Environmental noise survey,
    - PPG24 Noise Exposure Category of the site,
    - BS4142 assessment of the likelihood of complaints from industrial noise,
    - External amenity areas, and,
    - Unoccupied internal noise levels.
  - Part B: Predicted Noise Impact of the development on the surrounding area:
    - Construction noise,
    - Road traffic noise, and,
    - Residential activity noise.
  - Appendix A: Playing field noise.
  - Appendix B: Guidance documents & standards.

## Overview of the development

- 11.4 The site, on which a new housing estate is proposed, consists of open fields to the south, east & west of Highfield Farm, Figure 1, which are currently used either as paddocks or are fallow. The site is gradually inclined upwards to the west.
- 11.5 Surrounding the site are; Figure 1:
- North: Highfield Farm and open fields;
  - East: London Road with SIAC Tetbury Steel and Tetbury Audi beyond;
  - South: Housing estate; and

## 11. Noise

- West: Sir William Romney's School and its football & rugby pitches.

11.6 London Road is a busy main road with high volumes of traffic throughout the day and night.

11.7 SIAC Tetbury Steel has informed us that all manufacturing operations have been suspended for the foreseeable future and that at present only the offices are operational.

**Figure 1. Aerial view (source: google maps) showing the site**



## Part A: Off-site noise affecting the development

11.8 The assessment is in three parts:

- Noise survey of existing road traffic & predictions of industrial noise used to determine the PPG24 Noise Exposure Category of the site for mixed noise sources;
- Prediction of industrial noise levels and survey of existing background noise levels across the site to determine the likelihood of complaints according to BS4142; and
- Determination of compliance with World Health Organisation (WHO) guidance upper ambient noise limit for external amenity areas for combined road traffic noise, industrial noise and school related noise.

### Environmental Noise survey

11.9 A noise survey was conducted on 9/10 February 2010 to determine environmental noise levels affecting the land to the east, south & west of Highfield Farm, Tetbury.

11.10 The dominant noise source for the whole site is road traffic on London Road. During the survey no activity noise was observed from the adjacent commercial premises, SIAC Tetbury Steel and Tetbury Audi. Some activity noise from Sir William Romney's School, consisting of a drum class, (acoustic kit), and pupils circulating externally, was audible at the south-west corner of the site, (position H). However, this did not affect the readings.

11.11 Using the survey data, day & night period road traffic noise levels have been established at different locations on the site; Table 2.

### SIAC Tetbury Steel Industrial Noise

11.12 Currently the manufacturing operations of SIAC Tetbury Steel are suspended; consequently no measurements of industrial noise could be made.

11.13 At the request of Ray Brasington, (EHO Cotswold Districted Council), the assessment of SIAC noise affecting the proposed housing site has been conducted using SIAC site boundary noise limits imposed as part of their planning consent (Planning ref: CT.1085-1-X-AP, Condition D);

Noise limit at SIAC Tetbury Steel site boundary:

- 07:00 – 19:00hrs Mon-Fri & 07:00 – 13:00hrs Sat: LAeq 60dB(A)
- At all other times: LAeq 45dB(A)

11.14 The above limits are Corrected Noise Levels (CNL), which Ray Brasington informs us include a correction to account for the impulsive nature of the steelworks noise and therefore can be considered Rating Levels (RL) according to BS4142.

11.15 The numerical corrections that were used to determine the stated CNL noise limits are unknown. In BS4142 a 5dB correction is stipulated for impulsive noise, which is added to the Specific Noise Level (SNL) to determine the RL. For this assessment, to obtain the SNL, a conservative 3dB correction has been deducted from the CNL.

- 11.16 For the purpose of this assessment the steelworks noise source has been assumed to be at the centre of the rectangular 360m x 150m SIAC site, 75m inside the London Road site boundary. This noise source location produces the highest predicted steelworks noise levels across the proposed housing site.
- 11.17 The predicted SNLs, Table 2, have been included in the determination of the housing development site Noise Exposure Category (paragraphs 11.21 – 12.24) and in the assessment of compliance with WHO guidance for ambient noise limits in external amenity areas (paragraphs 11.30 – 11.32). The predicted RLs, Table 3, have been used to determine the likelihood of complaints according to BS4142 (paragraphs 11.24 – 11.29).

### Sir William Romney’s School Sports Pitch Activity Noise

- 11.18 During the noise survey the sports pitches were not in use. To predict the activity noise impact on the nearest proposed housing we have used noise measurements of a football training session obtained elsewhere; Appendix A.

**Table 11.1 Predicted sports pitch activity noise @ western boundary of the site**

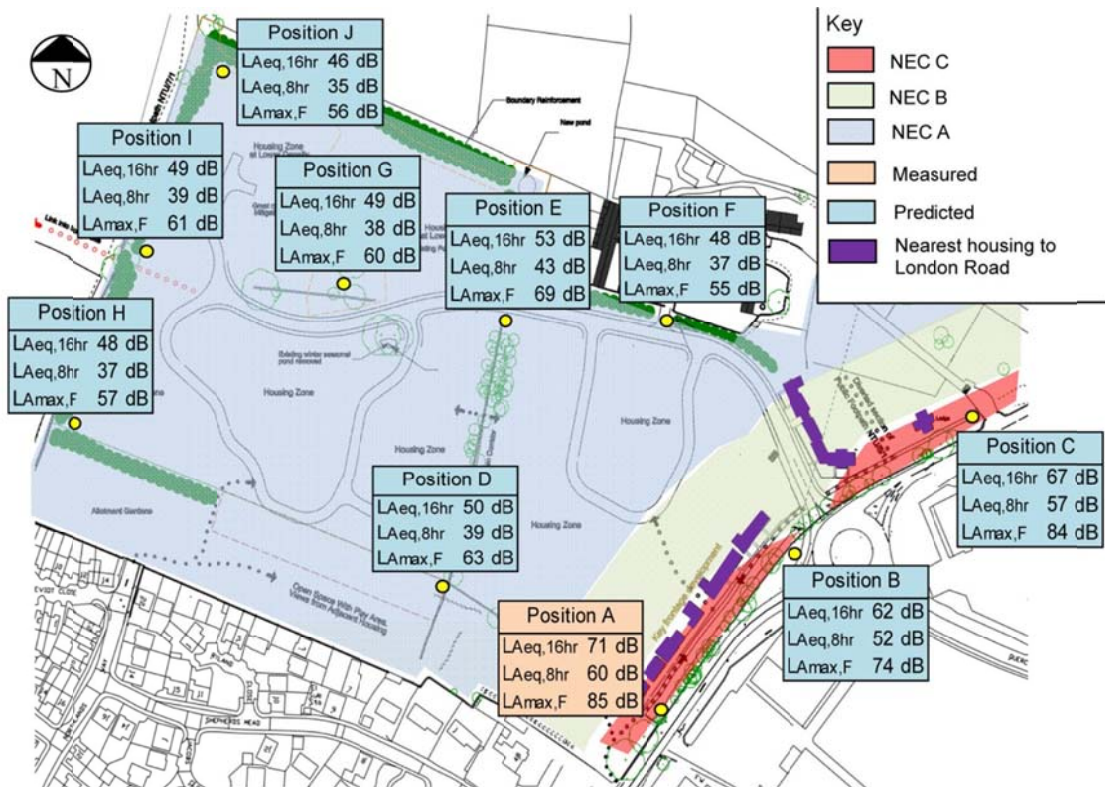
	m	LAeq,15min dB
Measured football training session activity noise @ side of pitch		56.1
Distance of measurements, $d_0$ , from effective noise source (centre of group of players)	15	
Approximate distance, $d_1$ , from nearest pitch to site boundary	40	
Distance correction, $20\log(d_1/d_0)$		8.5
Predicted pitch activity noise @ western boundary of the site		47.6

- 11.19 The predicted sports pitch activity noise level is approximately the same as the measured day ambient noise levels at positions H, I & J and therefore may be audible at these locations.

### Final representative external free-field noise levels

- 11.20 Table 11.2 and Figure 2 give the final predicted free-field day and night noise levels at various locations around the open site. These have been computed by combining:
- Predicted SIAC Tetbury Steel Specific Noise Level; and
  - Predicted road traffic noise levels.

**Figure 2. Site plan with measurement positions and corresponding measured (road traffic only) and predicted (aggregate road traffic and SIAC SNL) day & night ambient noise levels and NEC boundaries on an open site**



**Table 11.2 Final representative external free-field noise levels on open site**

Position	[SNL] Predicted SIAC Specific Noise Level on open site		[RTL] Predicted road traffic noise levels			[SNL] + [RTL] Final representative external free-field noise levels			Noise Exposure Category	
	7:00-19:00hrs Mon-Fri & 07:00-13:00hrs Sat	At all other times	Day (07:00 - 23:00hrs)	Night (23:00 - 07:00hrs)		Day (07:00 - 23:00hrs)	Night (23:00 - 07:00hrs)		Day	Night
	LAeq dB	LAeq dB	LAeq,16hr dB	LAeq,8hr dB	LAmix dB	LAeq,16hr dB	LAeq,8hr dB	LAmix dB		
A	53	38	71	60	85	71	60	85	C	C
B	50	35	62	52	74	62	52	74	B	B
C	45	30	67	57	84	67	57	84	C	C
D	44	29	48	38	63	50	39	63	A	A
E	42	27	53	42	69	53	43	69	A	A
F	43	28	46	36	55	48	37	55	A	A
G	41	26	48	38	60	49	38	60	A	A
H	40	25	47	37	57	48	37	57	A	A
I	40	25	48	38	61	49	38	61	A	A
J	39	24	45	35	56	46	35	56	A	A

### PPG24 Noise Exposure Category of the site

- 11.21 As the housing scheme has yet to be finalised the PPG24 Noise Exposure Category (NEC) of the site has been determined at the London Road site boundary; Table 11.3. At this location the site is in NEC C for mixed noise sources by day and night.
- 11.22 PPG24 classifies a whole site according to the highest noise level exposure at any of the proposed dwellings. For the provisional location of dwellings nearest to London Road, the site will be in NEC C; Figure 2. However, with a small relocation further west of the dwellings nearest to London Road, the site would fall in NEC B by day and night.

**Table 11.3 Noise Exposure Category (London Road site boundary)**

Period, T	Aggregate of traffic noise & predicted industrial noise (free-field), LAeq,T dB	Noise Exposure Category	Noise Exposure Category C Range, LAeq,T dB
Day (07:00 – 23:00hrs)	71	C	63 – 72
Night (23:00 – 07:00hrs)	60	C	57 – 66

11.23 It should be noted that only a small area of the site fronting London Road is in NEC C, the majority of the site being in NEC A.

### BS4142 assessment of the likelihood of complaints arising from industrial noise

11.24 Position B is not within the housing development site and positions A & C are at the London Road site boundary. However, all three have been included in the assessment as surrogates for potential dwellings and gardens that may be near these locations.

11.25 We define BS4142 Assessment Level = SIAC RL – min LA<sub>90</sub> dB, where:

- SIAC RL = predicted SIAC Tetbury Steel Rating Level;
- Min LA<sub>90</sub> dB = the lowest background noise level, LA<sub>90</sub>, derived from the survey data.

11.26 The Assessment Level at receiver locations A – I has been used to determine the likelihood of complaints according to BS4142.

11.27 At positions B & D – I, the Assessment Level during the day ranges from +6 to +8 dB, Table 11.4, which falls between BS4142 categories “complaints are likely” and “of marginal significance”. However, the industrial noise levels have been predicted on an open site. With dwellings on the site and a 1.8m close boarded timber fence along the London Road site boundary, shielding of the SIAC noise of between 5 and 10dB is likely for all plots. At positions B & D – I, the likelihood of complaints would then be comfortably within the BS4142 category “of marginal significance”.

11.28 For position A the Assessment Level is +12dB by day, for which BS4142 states “complaints are likely”. With a 1.8m close boarded timber fence along the London Road site boundary shielding of SIAC noise of up to 10dB is expected, which would then place position A into BS4142 category “of marginal significance”.

11.29 At positions D – I during the night the Assessment Level is ≤ +5dB and therefore is within BS4142 category “of marginal significance”. For position A – C at night the Assessment Level ranges from +6dB to +14dB, which falls in BS4142 categories “complaints are likely” and “of marginal significance”. However, the background noise level is below 30dB and in some instances the predicted SIAC Rating Level less than LA<sub>eq</sub> 35dB, for which BS4142 states that an assessment is not valid.

**Table 11.4 SIAC noise assessment at positions A – I**

Position	[RL] Predicted SIAC Rating Level on open site		[B] Lowest background noise level		[RL] – [B] Assessment Level	
	7:00 – 19:00hrs Mon- Fri & 07:00 – 13:00hrs	At all other times	07:00 – 19:00hrs	19:00 – 07:00hrs	07:00 – 19:00hrs	19:00 – 07:00hrs

	Sat					
	LAeq dB	LAeq dB	LA90 dB	LA90 dB	dB	dB
A	56	41	44	27	12	14
B	53	38	47	27	6	11
C	48	33	48	27	0	6
D	47	32	40	27	8	5
E	45	30	38	27	7	3
F	46	31	38	27	8	4
G	44	29	37	27	7	2
H	43	28	36	27	7	1
I	43	28	37	27	6	1
J	42	27	34	27	7	0

### External amenity areas

- 11.30 For the majority of the open site the combined SIAC & road traffic ambient noise level, Figure 2, is predicted to fall below WHO guidance upper limit of LAeq 55dB for external amenity areas. This limit coincides with the NEC A limit by day; the NEC A boundary is indicated by the blue line on Figure 2.
- 11.31 Sir William Romney's School sports pitch activity noise will only affect the western side of the site. At positions H & I, the closest receiver locations to the playing fields, the combined level of noise predicted from road traffic, SIAC Tetbury Steel & sports pitches is LAeq,1hr 51 dB during the day at the western boundary of the site, which is within WHO's upper limit.
- 11.32 With the introduction of housing and close boarded timber garden fences, shielding attenuation will reduce the ambient noise levels by approximately 10dB. For this situation gardens that are predicted to be within NEC B on the open site, where the category upper limit is LAeq 63dB by day, would then be within WHO guidance upper ambient noise limit of LAeq 55dB.

### Unoccupied internal noise levels

- 11.33 The Local Authority (LA) will usually stipulate unoccupied interior noise limits for habitable rooms, which are typically within the 'good' to 'reasonable' range given in BS8233:1999. Using the measured & predicted noise levels shown in Figure 2 a suitable layout and building envelope sound insulation scheme can be developed in order that the LA internal noise limits are met throughout the development.

## Part B: Noise Impact of the development on the surrounding area

- 11.34 The noise impact of the development has been assessed for the application area (shown in Figure 1), traffic flow data provided by FMW Consultancy and typical construction processes. Noise impact on houses of the development by existing and future noise sources is elaborated in paragraphs 11.8 – 11.33.
- 11.35 Potential noise sources of the development are as follows:
- Noise and vibration from construction of the development and from construction site traffic;
  - Traffic noise on the main roads arising from increased traffic flows to and from the completed development; and
  - Noise generated by future occupiers of the housing development.

### Construction Noise

- 11.36 Construction noise and vibration is usually short-term and may affect:
- Existing dwellings;
  - New occupied dwellings in a completed part of the development while construction on another part of the site continues; and
  - Existing offices adjacent to the site.
- 11.37 The construction of the housing itself will be a relatively quiet operation, but noisier operations will occur during the preparation of the site such as the use of excavators and dump trucks to level the site, dig foundations & dig trenches for utilities.
- 11.38 BS5228 lists a number of factors which can influence the likelihood of complaints from construction noise. Specifically these are:
- Site location;
  - Existing ambient noise levels;
  - Duration of site operations;
  - Hours of work;
  - Attitude of the contractor; and
  - Noise characteristics of the work being carried out.
- 11.39 To minimise complaints we recommend the following:
- Best practicable means to reduce noise as defined in the Control of Pollution Act 1974 Section 72 shall be used to reduce noise levels at all times and at all locations;
  - No construction work which is audible at residential properties shall be permitted outside the following hours: 08.00 to 18.00 hours, Monday to Friday and 08.00 hours to 13.00 hours Saturday. Construction work must not take place on Sundays;

- Noise levels within the permitted work hours shall be limited to 70 dB LAeq at 1 metre from the façade of existing dwellings (or future occupied dwellings already built); and
- Nearby residents should be kept informed of intended construction activity, especially particularly noisy operations such as piling.

11.40 Note also that, irrespective of our advice above, The Control of Pollution Act (CoPA) 1974, Section 60, gives the local authority power to control construction noise by serving a notice on the contractor. The notice can specify acceptable noise limits, work practices and hours of operation. Alternatively, Section 61 of the Act allows the developer to seek prior consent for construction work, the advantage, (for the contractor), being that once consent is granted the contractor is immune from prosecution, provided that the consent conditions are complied with.

### Road Traffic Noise

- 11.41 24hr traffic flow data has been provided by FMW Consultancy for London Road east & west of the site entrance, namely, a surveyed count in 2010 and projections of 2015 traffic flow with and without the development; Table 11.5.
- 11.42 Based on FMW's traffic flow data and 'Calculation of Road Traffic Noise', predictions have been made of 2015 traffic noise levels with and without the development, taking existing 2010 measured traffic flows as datum; Table 11.5.
- 11.43 The traffic noise impact of the development is equal to the difference between the predicted noise level for 2015 traffic flows with and without the development. Accordingly, we predict an increase in traffic noise on London Road of 0.5dB (west of site access) & 0.3dB (east of site access) due to the development. This increase is subjectively imperceptible and therefore considered to be an insignificant noise impact.

**Table 11.5 Predicted increase in traffic flow and noise due to the proposed housing development**

Road	Two-way 24 hour traffic flows			Increase [C] 2015 with development compared with [B] 2015 without development		Increase[C] 2015 with development compared with [A] 2010 existing	
	[A] 2010 existing (surveyed)	[B] 2015 without development	[C] 2015 with development	% increase in traffic flow	dB increase	% increase in traffic flow	dB increase
London Road (W of site access)	10,336	11,374	12,662	11	0.5	23	0.9
London Road (E of site access)	9,983	10,975	11,756	7	0.3	18	0.7

### Residential Activity Noise

- 11.44 The plan for the development has been well thought out to minimise noise impact on the existing housing estate south-west of the site. This includes the provision of a buffer green zone between the proposed development and housing estate and location of the new roads serving the development so that they avoid passing close to the existing housing estate.
- 11.45 The noise generated by future occupiers of the dwellings cannot be predicted as it depends on unknown activities of the end users. However, the future noise climate is likely to be similar to that currently experienced in the neighbouring housing estate south-west of the site.

### Playing Field Noise

- 11.46 Noise generated during an evening football practice session was measured at the edge of a playing field at Bettws School on 11 October 2007, Fig B.1. The measurement microphone was located at 1.0m from the boundary fence at a height of 1.2m and about 15m from the centre of play which was concentrated at one end of the pitch.
- Playing surface: grass;
  - Fence: woven wire mesh, ~ 4.0m high, no bounce back boards;
  - Noise from ball impacts on the fence: caused by the fence vibrating and rattling against the metal stanchions; and
  - Other noise: kicking the ball, shouting and whistles.
- 11.47 Noise from the football session was measured in 15-minute intervals during the period 19.30 – 21.05 hrs and the residual noise level was measured after the session finished during the period 21.10 – 21.45 hrs.

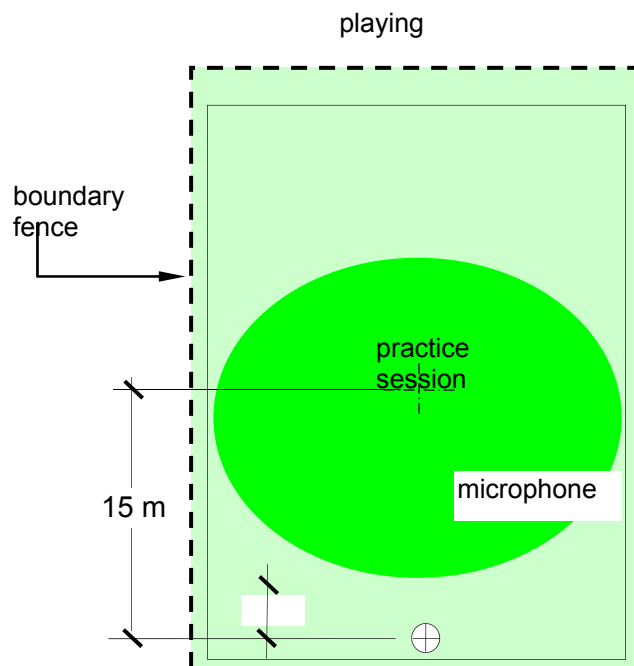
## 11. Noise

Equipment: B&K Type 2260 Sound Level Meter, calibration checked before and after the measurements with no deviation found.

Weather: dry and calm.

- 11.48 The survey results are shown in Tables B.1 and B.2 in which the measured LAeq has been corrected for the measured residual noise level according to BS4142, to obtain the Specific Noise Level 56.1 **dBA**.
- 11.49 Measured maximum levels (fast time weighting) were in the range 72.1 – 87.0 dBA with an arithmetic average value of 77.9 **dBA** and a standard deviation of **5.1dB**.

**Fig B.1 Plan of playing field, area of practice and measurement position**



**Table B.1 Football Pitch Noise**

Start	Duration	Distance, m	L <sub>Aeq</sub>	LAe	L <sub>AMax,F</sub>	L <sub>A01,F</sub>	L <sub>A90,F</sub>
hh:mm	hh:mm	from fence	dB	dB	dB	dB	dB
19:34	00:15	1.0	53.2	82.7	82.1	62.0	46.2
20:05	00:15	1.0	54.9	84.5	72.1	64.4	48.0
20:20	00:15	1.0	57.2	86.7	74.3	68.0	47.6
20:36	00:15	1.0	57.6	87.2	76.9	68.0	49.0
20:51	00:15	1.0	59.7	89.3	87.0	70.2	48.6

Start	Duration	Distance, m	L <sub>Aeq</sub>	LAe	L <sub>AMax,F</sub>	L <sub>A01,F</sub>	L <sub>A90,F</sub>	
hh:mm	hh:mm	from fence	dB	dB	dB	dB	dB	
L <sub>Aeq</sub> , dB			57.1					
BS4142 correction for residual noise, dB		-1.0						
<b>Specific noise level, L<sub>Aeq</sub>, dB</b>		<b>56.1</b>						

**Table B.2 Background Noise Survey**

Start	Duration	L <sub>Aeq</sub>	LAe	L <sub>AMax,F</sub>	L <sub>A01,F</sub>	L <sub>A90,F</sub>	
hh:mm	hh:mm	dB	dB	dB	dB	dB	
21:09	00:15	51.3	80.8	74	59.2	46.2	
21:24	00:15	49.4	78.9	60.6	55.6	46.4	
21:39	00:15	48.4	78	58.6	53.4	46.4	
Residual Noise Level L <sub>Aeq</sub> , dB		49.9					

## Guidance documents & Standards

### PPG24 Planning & Noise

- 11.50 To assist local planning authorities in assessing sites for residential development, with respect to noise, Government guidance is available in PPG24, "Planning Policy Guidance 24". For a given noise source (mixed noise sources in this instance), PPG24 categorises a site into one of four Noise Exposure Categories depending on its free-field noise exposure; Table 5.
- 11.51 PPG24 also states for night time noise levels: "Sites where individual noise events regularly exceed 82 dB L<sub>Amax</sub> (S time weighting) several times in any hour should be treated as being in NEC C, regardless of the L<sub>Aeq,8h</sub> (except where the L<sub>Aeq,8h</sub> already puts the site in NEC D)"
- 11.52 The values in Table B1 are specified in terms of the L<sub>Aeq</sub> noise level, which is defined as the steady noise level that has the same energy as the actual fluctuating noise over the same time period.
- 11.53 The values in Table 11.6 refer to values on 'an open site' at 1.2 – 1.5 m above ground.

**Table 11.6 PPG24 Noise exposure categories for new dwellings exposed to mixed noise sources**

Noise Exposure Category (NEC)	Daytime Noise Level L <sub>Aeq,16hours</sub> From 7.00 to 23.00	Nighttime Noise Level L <sub>Aeq,8hours</sub> From 23.00 to 7.00	Planning guidance
A	<55	<45	Noise need not to be considered as a determining factor in granting planning permission, although the noise level at the high end should not be regarded as a desirable level
B	55-63	45-57	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise
C	63-72	57-66	Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	>72	>66	Planning permission should normally be refused.

## Internal Noise Limits (BS8233)

**Table 11.7 BS8233 guidance for ambient noise levels in habitable & work rooms**

Indoor Ambient Noise Levels in Spaces when they are unoccupied. From BS 8233: 1999 (Table 5)			
Criterion	Typical Situation	Design Range LAeq,T [dB]	
		Good	Reasonable
Reasonable resting/sleeping conditions.	Living Rooms	30	40
	Bedrooms*	30	35
* For a reasonable standard in bedrooms at night, individual noise events (measured with F time-weighting) should not normally exceed 45 dB LAmax.			

### Guidance External Amenity Areas Noise Limits (WHO)

11.54 The World Health Organization's (WHO) Guidelines for Community Noise section 4.3.1 provides guideline ambient noise limits for external amenity areas during the day in relation to the likely level of annoyance:

*"To protect the majority of people from being seriously annoyed during the daytime, the sound pressure level on balconies, terraces and outdoor living areas should not exceed LAeq 55dB for a steady, continuous noise. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound pressure level should not exceed LAeq 50dB."*

### BS4142: Rating industrial noise affecting mixed residential and industrial areas

11.55 BS4142 provides a method of assessing the likelihood of complaints arising from industrial noise affecting people residing in dwellings.

11.56 The industrial noise is either measured or predicted at the receiver position as a discrete entity, distinct and free of influence from other noise contributing to the ambient noise environment. This is termed the Specific Level.

11.57 Certain acoustic features of industrial noise can increase the likelihood of complaint such as:

- The noise contains a distinguishable, discrete, continuous note (whine, hiss, screech, hum, etc);
- The noise contains distinct impulses (bangs, clicks, clatters, or thumps);
- The noise is irregular enough to attract attention.

11.58 To account for any of the above a 5dB correction is applied to the Specific Level to obtain the Rating Level.

11.59 The likelihood of complaints is determined by subtracting the measured background noise level at the receptor location from the Rating Level, where:

- A difference of around +10dB or more indicates that complaints are likely;
- A difference of around +5dB is of marginal significance;
- If the rating level is more than 10dB below the measured background noise level then this is a positive indication that complaints are unlikely.

11.60 Note that the assessment method given in BS4142 is not valid where either/or:

- Background noise levels are below LA90 30dB;
- Rating Levels are below LAeq 35dB.

# 12. Socio-Economics

## Introduction

- 12.1 This final chapter describes the potential social and socio-economic effects of the proposed residential development in the area of London Road, Tetbury. A full description of the site and the proposed development is included in Chapters 1- 4. This chapter should be read in conjunction with Chapter 6, Landscape and Visual and Chapter 10, Historic Environment.

## Context

- 12.2 The site residential development in the area of London Road, Tetbury is located within the Cotswold AONB which is a landscape of important physical, ecological and historical diversity recognised in national planning policy. Cotswold AONB is also a popular tourist destination. The primary purpose of AONB designation is to conserve and enhance the natural beauty of the area.
- 12.3 Within an AONB, priority is given to the landscape, flora and fauna, geological or physiographical features and heritage, including archaeology and settlement character. The coordinating body which existed prior to the creation of Natural England, The Countryside Agency, suggested that, *“Landscape encompasses everything – ‘natural’ and human – that makes an area distinctive: geology, climate, soil, plants, animals, communities, archaeology, buildings, the people who live in it, past and present, and the perceptions of those who visit it.”* In pursuing the primary purpose of designation, the Cotswold AONB Management Plan (CAMP) confirms that account should be taken of the needs of agriculture, forestry and other rural industries. CAMP goes on to confirm that *‘Attention should also be paid to the economic and social wellbeing of the area, as this plays a vital role in underpinning the area’s natural beauty. Particular regard should be paid to promoting sustainable forms of social and economic development which in themselves conserve the environment. Recreation is not an objective of designation, but the demand for recreation should be met so far as it is consistent with the conservation of natural beauty and the needs of agriculture, forestry and other uses’* (p. 6 Introduction CAMP 2008 – 2013).
- 12.4 Given the location of the site of the proposed residential development within the designated Cotswold AONB area, it has the potential to affect visitors’ perceptions of the area.



- 12.5 Tetbury is an historic market town with a significant rural catchment area. It attracts visitors and tourists all year around. Significant features in the local area include the Tetbury Industrial Estate and associated areas which form one of the District's main employment areas, which occupies an area of 10 hectares to the north east of the Town, and lies immediately opposite the Highfield Farm site. The local secondary school, (Sir William Romney's School), is a Performing and Visual Arts College (Foundation Status) and lies directly adjacent to the proposed development site. Also about 5 kilometres to the north east of Tetbury, is Kemble Airfield, a former military base, which includes an aerodrome (Cotswold Airport), a significant business park and flight training facility. The proposed development site itself also includes features of interest in the built and historic environment including Highfield Farm, whose significance is assessed in Chapter 9, Historic Environment.



- 12.6 The site of the proposed development is located in Tetbury Upton ward, within Cotswold District. The District has a population of about 83,222 – GCC mid-year estimate, (2006, ONS estimate 2006). It has an area of 450 square miles and a population density of about 150 persons per square kilometre, considerably less, (as would be expected for a mainly rural area), than the average of about 370 persons per square kilometre for England. 12.3 Tetbury Upton ward is geographically extensive, (See Figure 12.1), and included on the western edge of the town of Tetbury within the Cotswold Area Of Outstanding Natural Beauty. Of the total area in the District, 75% is included in the Cotswold Area of Outstanding Natural Beauty (AONB). This compares with 27% in the South West region and 15% in England.
- 12.7 The settlement pattern consists of a nine principal settlements, of which the town of Cirencester (population 19,003, GCC 2005 mid year estimate) is the largest located about 12km north east. The site is located between two of the other Principal settlements in the area: about 5km north east of Malmesbury (population 4,631, 2001 Census) and about 10km south of Stroud/Nailsworth/Stonehouse (populations 12.690, 2005 mid year estimate).

## Assessment Method

### Relevant Guidance and Methods

- 12.8 This assessment has taken into account the relevant guidance on community and social effects.
- 12.9 The baseline conditions for the proposed development have been investigated using the following sources:

- 2001 Census;
- other sources of statistical information including Tourism Info, Labour Market Profiles, various publications of Gloucestershire County Council, and more general information from the local authorities and tourist agencies.

Public rights of way have been investigated with reference to the Definitive Map and by survey.

### Previous Studies

- 12.10 The assessment of impact has taken into account studies of the effect of development on tourism in other parts of the UK. It has also taken account of the assessment of visual impact appraisal summarised in Chapter 6 of this Statement.

### Definition of Area of Study

- 12.11 The definition of the study area arises from the description in the Introduction – consisting primarily of the ward in which the site is located, and adjacent wards, taking into account also Cotswold District as a whole. In respect of rights of way, a detailed investigation was undertaken into all routes passing in the vicinity of the site or within the visual sphere of influence centred on the site. Figure 12.2 shows public rights of way and cycle routes in the vicinity of the site.

### Consultations

- 12.12 The following informal consultations and discussions have informed this chapter:
- Cotswold District Council – Forward Planning & Development Control Team;
  - Office of National Statistics;
  - Visit Britain;
  - Sir William Romney’s School;
  - Gloucestershire County Council: Research Team and Information Group;
  - Gloucestershire County Council: Public Rights of Way – Legal Team.

### Baseline Conditions

- 12.13 There are two strands to the description of baseline conditions: first, the role of tourism as illustrated by information from the Census and other sources; secondly, by reference to the rights of way in the vicinity of the proposed development. These are dealt with in turn.

### Business and Economy

- 12.14 Cotswold District is a large rural district located close to Cirencester with a population of 44,416. Earnings are relatively high, and unemployment is also low. Research by Gloucestershire CC shows the significance of tourism to the local economy (and employment).

The Cotswold Economy and Labour Market Profile published by Gloucestershire CC provides a summary of economic conditions in the District.

- 12.15 Gross Value Added (GVA) in the Cotswolds from tourism has not been assessed in detail but is estimated at around £150 million. This figure is slightly higher than the Gloucestershire average per head of population but significantly lower than the UK average (18,205) (2005 figures). The categories used in the Census table for industry and occupation do not relate directly to tourism; in terms of occupation, a number of different activities and skills are involved. However, the value of tourism to the Gloucestershire Economy is such that Gloucestershire's main towns are heavily dependent on tourism as a diverse but vital industry. Smaller towns and villages also benefit, either through their positioning on main tourist routes or through the draw of visitor attractions in their vicinity. Cotswold District is more heavily dependent on tourism than any other district in the County except Cheltenham and Gloucester. Tourism therefore contributes significantly to the local economy with the District attracting more day visitors than any other district except Gloucester and Cheltenham, and a significant number of staying visitors. Total employment in tourism and related businesses has not been assessed in detail.
- 12.16 The District's considerable natural attractions are spread throughout the district; whereas the man-made attractions are focused on the principal towns and routeways in between. The town of Tetbury provides accommodation for many visitors touring the Cotswolds. Tetbury itself offers a combination of historic medieval, Gothic Revival and more contemporary architectural attractions including the Market House and St Mary's' Church. The town has been hosting a Music Festival and a Food & Drink Festival since 2007. The national arboretum at Westonbirt is a popular tourist attraction located 4 kms south west of Tetbury, with one of the largest collection of trees in the world. The National Arboretum is open all year round.
- 12.17 There are no specific tourist destinations in the immediate vicinity of the proposed development site at Highfield Farm. A hairdressing salon is operated directly to the north of the development site (Cherish Salon – Beauty Hair & Nails). An equestrian facility is also located immediately to the north of the proposed development site. There is also an existing retail outlet selling vegetable produce (Duchy of Cornwall) to the north west of the site which attracts customers from a relatively wide catchment. The main forms of recreational activity relate to the use of the local footpath network and the various informal dog-walking routes on the proposed development site itself.

### Public Rights of Way/Public Transport

- 12.18 As highway authority, Gloucestershire County Council has responsibility for the public rights of way network. Section 27 of the Countryside Act 1968 places a duty on highway authorities to signpost rights of way from metalled roads. Public rights of way in the vicinity of the proposed residential development site are detailed in Chapter 6. The footpath passing to the east of the site would be diverted as part of the proposals. This footpath will follow its existing route to the north and join the A433 London Road at its existing crossing point.

- 12.19 Highfield Farmhouse is a listed building to the north of the application site which is visible from vantage points on public footpath (Ref No. NTU/8/1) passing to the east (See Figure 12.1). As confirmed in the Landscape and Visual Assessment, (Chapter 6) whilst the listed farmhouse is visible from the A433 London Road it is not widely visible in the wider AONB landscape. A public footpath immediately to the west of the site does not allow direct views of the listed elements of Highfield Farmhouse.
- 12.20 The condition on the ground and ease of use of these local rights of way were investigated. In all cases, except appropriate signs were in place and no obstructions to their use were found. No other walkers were encountered during investigations, (six occasions). It is likely that given the nature and location of footpaths, (i.e. not linked with Cotswold Way and the like), their current levels of use is generally low.



- 12.21 Informal access routes on and in the vicinity of the proposed development site were not investigated. However discussions with representatives of the local secondary school, (Sir William Romney's School), and Gloucestershire County Council confirmed that all parties would be keen to open up new accesses to the school of both a pedestrian, cycleway and vehicular nature in conjunction with the development. Given the likelihood that new residential development on the proposed site would lead to the generation of additional pupils for the school this option has been thoroughly investigated. As a result new pedestrian linkages are proposed along with longer-term options for vehicular access through the proposed development site.

- 12.22 Given the proximity of the Tetbury Industrial Estate and other future employment and residential allocation areas the opportunity for improved access to these areas has been investigated. Given that the public transport network routes buses past the frontage of the proposed development site, opportunities have also been investigated for improving existing services through additional contribution and the expansion of the local community bus initiative in a circular route around the wards of Tetbury and Tetbury Upton Parish, (see Chapter 9). These improved linkages could do much to improve local accessibility to community infrastructure in the local area.

## Parking

- 12.23 Whilst public parking areas are available within the centre of Tetbury to co-ordinate with walks along public rights of way in the vicinity of the proposed development site, there is a limited amount of space for cars on London Road, in the vicinity of the Sir William Romney School and Blind Lane (Track), to the north west of the site, which intersects with the public footpath which crosses the subject site. There is limited parking at the Tetbury leisure centre to the west of the proposed development site. Otherwise, there is no official parking, and there are no safe places to park, at or near any of the points at which these rights of way connect with metalled roads.

## Access Land

- 12.24 The Countryside and Rights of Way Act 2000, (CROW), introduced rights of access on mountain, moor, heath, down and registered common land, and was completed across England on 31 October 2005. The right covers most recreational activities carried out on foot, including walking, sightseeing, bird watching, climbing and running. The extent of access land is shown on subsequent editions of the Ordnance Survey Outdoor Leisure or Explorer maps at 1: 25,000 scale, including in this case OL15.
- 12.25 OL15 shows limited areas of access land in the vicinity of the site of the proposed development: immediately to the east and north.
- 12.26 No access land is shown within the site area itself or the associated land ownership as shown on Figure 4.1.

## Guidance on Impacts to Pedestrians and Cyclists

- 12.27 Little guidance exists for assessment of impacts arising as a consequence of residential development on public rights of way and other recreational uses of the land. Limited guidance exists for the assessment of effects on pedestrians, equestrians and others for the construction of roads (Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 8 – pedestrians, Cyclists, Equestrians and Community Effects). Briefly, that guidance presents a method for assessing potential impacts of severing or severely hindering a non-motorised route through either construction of a new road or substantially increasing traffic on an existing road; or substantially changing the amenity (relative pleasantness of a journey) of a route through impacts such as pollution and or a change in the facilities available.

12.28 In the case of the Highfield Farm development, potential impacts on adjacent public rights of way network are extremely limited. Changes brought about to local footpaths are characterised mainly as alterations to local amenity. These changes are dependant largely on factors such as noise and visual effects brought about by residential development. They also relate to the characteristic features of local route for which the purpose of outdoor recreation might be specifically targeted i.e. the enjoyment of birds, wildlife, botany etc. Detailed assessment of the potential the direct and indirect impact on adjacent areas are presented in the topic chapters within this Environmental Statement and the direct and indirect impacts to the environment and those assessments are not repeated here.

### Limitations

- 12.29 One of the limitations of the baseline survey is that the data from the existing Census is significantly out of date. More recent data on some topics is nevertheless available, and the County Council provides more comprehensive information than many councils do, in the form of (for example), the Gloucestershire Data Book and the District Profiles. Generally speaking, the baseline conditions can be established with a reasonable degree of relevance and objectivity.
- 12.30 However, the issues raised by the potential impact of this particular kind of development cannot easily or directly be addressed by reference to data of this kind. Much depends on public attitudes to residential development in the landscape, which are known to vary. It is the opinion of some that residential development is a blot on the landscape, notwithstanding the role homes play in providing accommodation within sustainable locations.
- 12.31 The effect of the proposed development on people's propensity to visit this part of Gloucestershire will depend to a certain extent on the nature or purpose of the visit. For example, people specifically interested in the attractions of the town of Tetbury or, say, the Kemble Airfield Museum, may be less concerned about a residential in the vicinity than walkers, horse riders or others interested in the wider landscape.
- 12.32 The effects of a residential scheme in an area, which has already experienced significant environmental change in the immediate vicinity, may be less severe. The proposed development site is adjacent to the last major residential development site in Tetbury. There is also the question, in attempting to assess long term effects, of whether the effect of residential development could be distinguished from any other influences on tourism.

## Assessment of Effects

### Rights of Way and Access Land

- 12.33 The site of the proposed development has adjacent public rights of way. Informal access is also associated with the proposed development site and the adjacent secondary school grounds.



- 12.34 As stated in Chapter 6 the potential erosion of distinctive features and the loss of Cotswold Character has been avoided by a series of measures to preserve and enhance the setting of the proposed development site (See Chapter 6).
- 12.35 As indicated above, signposts associated with the formal public right of way network were found in all appropriate locations. This is more than just evidence of the highway authority carrying out its duties properly; such signs give the user of rights of way confidence, and other things being equal, this will encourage usage. However, there are other factors, which suggest that usage may be low. The lack of parking has already been referred to. Furthermore, most of the rights of way do not form part of a circuit of reasonable length unless significant lengths of metalled road are also included. Most walkers prefer to avoid metalled roads if possible because of the dangers from motor traffic.
- 12.36 The landscape and visual assessment shows that the area which falls within the Primary Visual Envelope /Zone of Visual Influence of the proposed development is extremely constrained. However, as the Landscape chapter also makes clear, potential views of the development would be mitigated, or in some locations prevented altogether, by landform and vegetation. This is also true of the rights of way reviewed in this chapter. Furthermore, there are other factors, which are likely to have an adverse effect on the user's experience. The backdrop to the site is made up of a school, existing modern residential development and an extensive industrialised employment area.
- 12.37 The main road in the vicinity of the onsite footpath (London Road) is heavily trafficked and used by HGVs travelling to and from the adjacent employment areas. The eastern part of the

site is visible from along approximately 600m of the A433 London Road at the point where the road runs alongside the eastern site boundary. There is currently no footway along this section of road. The provision of an extended pedestrian linkage along London Road is proposed as part of the proposed residential development. Similarly, the proposals propose the creation of an improved northern approach into Tetbury, which would enhance this major route into the town (See Chapter 6).

- 12.38 During the construction and operation of the proposed residential development, it is not proposed that any Public Rights of Way (PROW) would be closed.
- 12.39 The temporary construction period would entail changes to the views of the site from these routes, particularly from the public footpath that runs along the north east of the site area, and would also generate dust and noise from those associated with an active works to a construction site. Measures to minimise construction effects such as dust and noise are set out in Chapter 5 and, in general the temporary change in amenity would lead to a temporary adverse effect on users of the PROW within proximity of the site.

### **Economic Impact**

- 12.40 The following sections consider potential impacts at both the construction and the operational stages.
- 12.41 A key issues raised by the construction phase is the extent to which main contractors and sub contractors bring in labour from outside the region or attempt to recruit labour locally. Normally this is a combination of the two, with imported labour usually consisting of workers with specialist skills, and local recruitment usually consisting of unskilled and semi-skilled workers.

### **Construction Phase**

- 12.42 Construction workers, especially those with specialist skills, are known to be used to travel daily over significant distances. A catchment area for labour of ninety minutes travel time is considered to represent the potential labour market area. In this case, the catchment area would extend as far as (clockwise from west) Swindon and Cheltenham using the travel times from the AA website as guidance. This area includes the large urban area of Bristol.
- 12.43 Up to 35 construction staff and two to four engineering and supervisory staff are anticipated to be employed for construction over a three-year duration.
- 12.44 Ground leveling including creation of the newt mitigation zone would most likely be carried out by a local earthworks contractor and specialist consultant. The creation would also be undertaken by supervised by a local consultant.
- 12.45 The concrete and gravel needed for the project would be won locally.
- 12.46 Therefore, a relatively small number of jobs would be created for a short duration and this would have a negligible effect on employment levels.

## Operational Phase

- 12.47 Employment in the operational phase is likely to consist of routine maintenance of the development and maintenance of the associated areas. This will take place intermittently and will not provide continuous employment in the locality; it is likely to be undertaken by specialists from outside the area and therefore a negligible effect.



## Tourism

- 12.48 It is unlikely that the proposed development would have not had a detrimental effect on actual tourism figures for the areas of study, given that occupants of the properties would themselves partake in the activity.
- 12.49 It is likely that the enhancement of this key entrance into Tetbury will do much to improve the visitor experience particularly of those travelling to the historic centre of Tetbury from Cirencester or as part of a tour of the main towns and villages within the Cotswolds.
- 12.50 It may be that the presence of additional residential development along with frontage landscaping and the like slightly enhances tourism in the local areas, although there is not likely to be a significant effect.

## Indirect Effects

- 12.51 Given the modest levels of employment likely to be created in the construction phase, and the negligible level in the operational phase, the indirect effects of the development are potentially

the most significant, although they are the most difficult to identify and quantify. However, the nature of the existing rights of way in the area, and the condition of the environment through which they pass, suggest that the proposed development is likely to have a negligible impact on their current low levels of use. It is considered highly unlikely that the proposed development will have any discernible impact on other visitor attractions in the area such as Westonbirt Arboretum.

### The Wider Context

- 12.52 The landscape and visual assessment undertaken as part of this EIA identifies that primary views of the proposed development site from within the identified ZVI lie relatively close to the site within 0.5km radius (See Chapter 6). These areas are illustrated on Figure 6.5.
- 12.53 Figure 6.5 shows that virtually all of the land within the zone of visual influence (ZVI) most of it within 1.5km, and in diminishing proportions further out. It is significant however that the extent of the ZVI to the south is curtailed by the extent of the existing development, which means that almost all of the surrounding Cotswold AONB, and therefore local visitor sites, fall outside the ZVI.
- 12.54 Figure 6 (Visual Envelope) also identifies 7 locations for photoviewpoints within 1.5km of the site, the rest further away. These do not include landscape or historic features of interest including the historic town centre and Railway Yard/Splash/Wor Well (Source of the Avon).
- 12.55 From the closest of the points listed, Railway Yard/Splash/Wor Well, there are no significant views eastwards to the site. It is considered that the other points i.e. beyond 1.5 km are so distant that the proposed housing will form an insignificant element in views and therefore unlikely to diminish the quality of the experience of the visitor.

### Summary

- 12.56 The development has low potential to create employment opportunities locally. Where opportunities do exist these will be mostly limited to the construction phase, and even then the opportunities will be small in number and over a short, twelve month duration. However many of these tasks could be carried out by local businesses from the area.
- 12.57 There is potential for a number of indirect effects during the post-construction phase of the development, focused upon the effect upon existing public rights of way, the effect on the Cotswold AONB and a more general effect upon the attractiveness of Cotswold as a whole to tourists. For users of public rights of way within proximity of the site there would be changes to amenity (or pleasantness of the route) during construction and operation. During construction, changes to amenity would be associated with views, dust and noise and for operation, views and noise levels. In the operational phase the improved northern approach into Tetbury would enhance a major route into the town (See Chapter 6). Given the enhanced architectural and landscape treatment the impact on the existing tourist route will be positive rather than negative.