

# **Extended Phase 1 Habitat Survey (Preliminary Ecological Appraisal)**

Land North of West Street

Site A

Tollesbury

Essex

**Prepared for:**  
Tollesbury Parish Council

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## 1. Survey Finding and Recommendations Summary

In summary, site A comprises an open aspect arable agricultural field which is largely ecologically poor given previous and current land use of intensive agriculture. Whilst limited, ecological features on site comprise the boundary tree lines/hedgerow along the northern and southern boundary and mature trees on the northern boundary.

The statutory and non-statutory designation search undertaken as part of the desk study identified that the site is not situated within nor bounds any statutory or non-statutory designated locations. However, given the presence of National/International statutory designations within a 2km radius of the site, it is advised that in the context of developing a Neighbourhood Plan, it is worth considering in advance how 'leisure' related impacts to offsite designated locations as a result of a future development proposal can be limited and controlled through provision of on-site open spaces/linkages to existing footpath networks.

With particular regard to shaping potential future developments, it is advised that where possible, any proposal should seek to retain and enhance existing tree lines and hedgerows. In addition, any new development should seek to provide significant planting and enhancements through infill planting of existing hedgerows/tree lines, creation of woodland strips/buffer zones. Enhancements could also include installation of habitat boxes throughout a development site. Such a requirement for the retention of features and ecological enhancements could be written into a Neighbourhood Plan to ensure implementation in a new development, and guide future design layouts accordingly.

Whilst this report has not assessed a specific proposed layout and it should be noted that any future planning application would need to be accompanied by 'development specific' surveys, reports and mitigation strategies, as a guide this report has sought to identify likely presence of protected species where appropriate. Therefore, based upon the results of the survey undertaken, it is concluded that with caveats identified in this report, further surveys would be recommended and appropriate in respect of bat, reptile and badger should the site/sections of site be subject to a proposal. In addition, further surveys may be required if over time the land use of the site changes and the site becomes neglected. The need for specific surveys would be determined as part of a 'development specific' Preliminary Ecological Appraisal that would accompany any future application.



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The site based element is supported by a desktop study undertaken to identify the presence of nationally/national designation or protected species within the vicinity (up to a 3KM radius) of the site. The final part of the project brief was to identify and more recommendations as appropriate for any further surveys required to determine presence/absence of protected species on site. If the survey determined that presence of a protected species on site was considered to be reasonably likely.

## 2.2 Development Proposals & Planning Context

No development proposals are currently available, and this report does not assess any particular scheme or layout. The purpose of the FEA is to assist TPC in their development of a neighbourhood plan (NPP).

As such, the report will discuss the site and identify ecological issues that should be taken into account with the purpose of assisting development of the NPP. Whilst this report has not assessed a proposed layout and any future planning application would need to be accompanied by 'development specific' surveys, reports and mitigation strategies as a guide, this report has sought to identify likely presence of protected species where appropriate, and the scope of surveys that might be required were the situation of the site be subject to a development proposal.

## 2.3 Scope of Survey

The purpose of this report is to provide an independent opinion of the likely presence of protected species on a site to inform the client of their obligations, and to assist TPC in their development of a NPP.

It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment. This FEA does not constitute a full botanical survey or a Phase 2 preconstruction survey for Japanese Knotweed. In this regard, this survey provides a preliminary view of the likelihood of protected species occurring on site, based on the suitability of the habitat and any



## **2. Introduction**

### **2.1. Phase 1 Brief**

T4 Ecology Ltd was commissioned by Tollesbury Parish Council (TPC) to undertake an ecological assessment of land located to the North of West Street, Tollesbury and is land referred to by TPC as 'Site A'.

This report contains the findings of a Preliminary Ecological Appraisal-PEA (Extended Phase 1 Habitat Survey). The Purpose of a PEA is to identify the potential for presence of protected species on a site, in line with European legislation, UK law and the requirements of The National Planning Policy Framework (NPPF)(2012). The brief of the ecological survey was to assess the habitats found on site and identify the potential for presence on site of protected species.

The site based element is supported by a desktop study undertaken to identify presence of Statutory/National/Local designations or protected species within the vicinity (up to a 2KM radius) of the site. The final part of the project brief was to identify and make recommendations as appropriate for any further surveys required to determine presence/absence of protected species on site if the survey determined that presence of a protected species on site was considered to be reasonably likely.

### **2.2. Development Proposals & Planning Context**

No development proposals are currently available, and this report does not assess any particular scheme or layout. The purpose of this PEA is to assist TPC in their development of a Neighbourhood Plan (NP).

As such, this report will discuss the site and identify ecological issues that should be taken into account, with the purposes of assisting development of the NP. Whilst this report has not assessed a proposed layout and any future planning application would need to be accompanied by 'development specific' surveys, reports and mitigation strategies, as a guide, this report has sought to identify likely presence of protected species where appropriate, and the scope of surveys that might be required were the site/section of the site be subject to a development proposal.

### **2.3. Scope of Survey**

The purpose of this report is to provide an independent opinion of the likely presence of protected species on a site to inform the client of their obligations, and to assist TPC in their development of a NP.

It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment. This PEA does not constitute a full botanical survey or a Phase 2 preconstruction survey for Japanese Knotweed. In this regard, this survey provides a preliminary view of the likelihood of protected species occurring on site, based on the suitability of the habitat and any



direct evidence on site. Additional surveys may be required if it is considered reasonably likely a protected species may be present.

The survey presents a snapshot in time, and therefore makes an assessment purely of what was seen at the time the survey was undertaken. The PEA does not therefore make any retrospective analyses.

Survey methodology involves undertaking a site visit to gain an understanding of the ecology and surrounding characteristics. During the site visit the recording and mapping of habitat types and ecological features present on site is undertaken, including the identification of the main species present. The potential for presence of protected species is assessed as part of the overall methodology and further advice/surveys recommended as considered appropriate based on the evidence obtained.

The survey work was undertaken in accordance with Guidelines for Preliminary Ecological Appraisal produced by the Chartered Institute of Ecology and Environmental Management (CIEEM) in April 2013.

Methods are also in accordance to the general principles contained within British Standards Institute (BSI) BS43033 - Biodiversity-Code of Practice for Planning & Development.

A Phase 1 Habitat Survey Plan is included as Annex 3. Photographs are included within Annex 2.

### 3.1.1 Phase 1 Survey Timing and Conditions

The Extended Phase 1 Habitat Survey was undertaken by Consultant Ecologist Peter Hunt BSc (Hons) MCIEEM on the 10<sup>th</sup> March 2017. The conditions were 50% cloud cover, 7°C with a light breeze.

Peter Hunt is a full member of the Chartered Institute of Ecology & Environmental Management (CIEEM) and subject to the CIEEM Professional Code of Conduct. The survey is licensed by Natural England for surveying great crested newts. The surveyor is an ecologist with over 12 years of experience and has been involved in a wide range of projects from single dwelling developments to large strategic urban renewal schemes subject to full Environmental Impact Assessment (EIA).

### 3.2 Desktop Study & Records Search

To gain an understanding of any designations throughout the site in addition to the historical presence of protected species, desktop data has been obtained from the following sources:

#### 3.2.1 Historical Protected Species Data

Records were requested from the Essex Field Club (EFC) Essex Records Partnership data search service. The information supplied by EFC is compiled using county records held by the County Records of the Essex Field Club, Butterfly Conservation, Essex Amphibian & Reptile Group, Essex Bat Group and provide information upon the records that were available at the time the search was undertaken. Therefore, a protected species records data search was undertaken for records of protected



### **3. Methodology**

#### **3.1. Phase 1 Habitat Survey**

Habitats on site were recorded in accordance with the general principles and methods provided in the Handbook for Phase 1 Habitat Survey, JNCC 1993. The survey methodology involves undertaking a site visit to gain an understanding of the site ecology and surrounding characteristics. During the site visit the recording and mapping of habitat types and ecological features present on site is undertaken, including the identification of the main species present. The potential for presence of protected species is assessed as part of the overall methodology, and further advice/surveys recommended as considered appropriate based on the evidence obtained.

The survey works were undertaken in accordance with Guidelines for Preliminary Ecological Appraisal produced by the Chartered Institute of Ecology and Environmental Management (CIEEM) in April 2013.

Methods are also in accordance to the general principles contained within British Standards Institute (BSI) BS42020 – Biodiversity-Code of Practice for Planning & Development.

A Phase 1 Habitat Survey Plan is included as Annex 3. Photographs are included within Annex 2.

##### **3.1.1. Phase 1 Survey Timings and Conditions**

The Extended Phase 1 Habitat Survey was undertaken by Consultant Ecologist Peter Harris BSc (hons) MCIEEM on the 10<sup>th</sup> March 2017. The conditions were 50% cloud cover, 7°C with a light breeze.

Peter Harris is a full member of the Chartered Institute of Ecology & Environmental Management (CIEEM) and subject to the CIEEM Professional Code of Conduct. The surveyor is licensed by Natural England for surveying great crested newts. The surveyor is an ecologist with over 12 years of experience, and has been involved in a wide range of projects from single dwelling developments to large strategic urban renewal schemes subject to full Environmental Impact Assessment (EIA).

#### **3.2. Desktop Study & Records Search**

To gain an understanding of any designations on/around the site in addition to the historical presence of protected species, desktop data has been obtained from the following sources:

##### **3.2.1. Historical Protected Species Data**

Records were requested from the Essex Field Club (EFC) Essex Recorders Partnership data search service. The information supplied by EFC is compiled using county records held by the County Recorders of the Essex Field Club, Butterfly Conservation, Essex Amphibian & Reptile Group, Essex Bat Group and provide information upon the records that were available at the time the search was undertaken. Therefore, a protected species records data search was undertaken for records of protected



species for a minimum of 1km and a maximum of a 2km radius of the site grid reference, in addition to any other pertinent information relevant to the site.

Use of data is in accordance with CIEEM Guidelines for Accessing & Using Biodiversity Data, March 2016.

### **3.2.2. Designations**

A desktop study was undertaken through MAGIC (Multi-Agency Geographic Information System for Countryside). The search looked to identify the presence of statutory designated sites within a 2km radius (e.g. Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR).

### **3.2.3 Additional Information**

Freely available on-line mapping information and Ordnance Survey Maps were consulted as part of the background assessment.



## 4. Results

### 4.1. Desk study Results.

Record searches are by no means exhaustive, and certain species including reptiles and great crested newt are under recorded nationally. In addition, many of the records can be considered too old or may be unverified. However, the records provide an indication of the species of note historically found.

#### Site Details

- The site is located at Central Grid Reference: TL 95032 10636
- Postcode: CM9 8RJ

#### 4.1.1. Magic-Statutory Designations

The site is not located within, nor bounding a statutory designated location.

The following designations are situated within a 2km radius of the site:

- Blackwater Estuary (Mid Essex Coast) Ramsar Site & Special Protection Area (SPA) is situated approximately 1.8km east, north east and south east.
- Blackwater Estuary Site of Special Scientific Interest (SSSI) 1.8km north east.

#### Impact Assessment/Management

Both designations are of National / International Importance as a result of the habitat provided for migratory bird life.

At the time of writing, no proposal plans are available, and the volume of proposed future development is not known.

Whilst it is acknowledged that the village of Tollesbury is situated between the site and the offsite designations, it is likely that any development proposal would need to take into consideration the potential impact that additional residents (and therefore potential visitors/leisure users) in a medium to large development would have upon the offsite designations, with particular reference to the SPA. Research has shown that additional visitor numbers/leisure users can have an adverse impact upon nesting bird assemblages and behaviours.

Under Regulations 61 and 62 of the Habitats Regulations, Local Planning Authorities as the 'competent authority' must have regard for any potential impact that a plan or project might have on European designated sites. As such, a Habitat Regulations Assessment (HRA) is likely to be required should a proposed development be considered to be of a sufficient size such that risk of additional visitor impact is a possibility. The HRA is an exercise undertaken by the LPA.



However, in the context of developing a NP, it is worth considering early on how impacts as a result of a future development proposal can be limited and controlled.

Certainly, research has identified that the provision of usable open space and linkages to existing footpaths, dog walking area and trails with interpretation can have a significant effect in reducing the impacts upon statutory designations by ensuring that new residents have access to open space and leisure etc., and therefore would not need to visit the designated locations to undertake such pursuits. Therefore, within the context of developing a NP, a requirement related to provision of quality open space, access to footpaths and leisure be an important aspiration for Tollesbury, such that potential impacts upon important ecological locations are minimised as far as is reasonably possible within future developments.

Early identification and pre-planning for such actions will assist the LPA in their determination, and ensure that future developments are location appropriate.

#### **4.1.2. Local Wildlife Sites-Non Statutory Designations**

Local Wildlife Sites (LWS) are used in the planning system to protect areas that have substantive nature conservation value at a local level. The site is not situated within, nor bounds any LWS locations.

The nearest such location comprises St Mary's Churchyard LWS. At its closest point, the LWS is situated approximately 0.55km north east of the site A.

#### **4.1.3. Biological Records**

A search of the protected species records data was undertaken via the EFC. A summary of records identified is provided below:

##### **Great Crested Newt/Amphibian Species & Reptile Species**

No records were identified in respect of great crested newt within the search radius.

##### **Reptile**

2 records for grass snake dating from 2012 were identified for a location situated approximately 0.2km from site to the east.

##### **Terrestrial Mammal Species**

##### **Badger**

1 record was identified from 2012 for a location 0.3km from site.

##### **Bat**

The search identified the following records in respect of bat species:

| <b>Species</b> | <b>No. Records</b> | <b>Date(s)</b> | <b>closest to site</b> |
|----------------|--------------------|----------------|------------------------|
| Natterers      | 1x Record          | 2013           | 1.6 km from site       |
| Daubenton      | 1x Record          | 2010           | 1.2km from site        |

|                |             |           |                 |
|----------------|-------------|-----------|-----------------|
| Noctule        | 1x Record   | 2013      | 1.6km from site |
| C. Pipistrelle | 12x Records | 1995-2014 | 0.2km from site |
| S. Pipistrelle | 2x Records  | 2011/12   | 0.3km from site |
| B. Long eared  | 3x Records  | 1998-2014 | 0.2km from site |

#### Brown Hare

6 records were identified between 1995 and 2008. The closest to the site was situated 0.7km from site.

#### Western Hedgehog

6 records were identified within the search radius, dating from 1995 to 2013, the closest of which was 0.2km from site.

#### European Water Vole

Evidence of presence of this species was recorded in 2008 in Walsham-Le-Willows region approximately 0.7km away from site.

#### Harvest Mouse

1 record was identified 1.1km from site, dating from 1999.

#### Bird Species

Records were available for a range of birds to within the search radius. A list is included as Annex 1a.



## **4.2. Survey Results & Analysis**

### **4.2.1 Site & Surroundings Description & Habitats**

The location of Target Notes (TN) identified within this section are illustrated on the plan contained within Annex 3.

Site A is situated on the western side of Tollesbury village, approximately 0.5km west of the village centre.

To the north, the site is bounded by arable agricultural fields, with a public footpath situated along the northern, eastern and western boundaries. Residential dwellings and their associated gardens also bound the site to the east.

The south western boundary of the site is bounded by West Street, whilst the southern and south eastern boundary of the site bounds residential dwellings/associated gardens of properties situated along the northern side of West Street.

To the west, the site is bounded by a farm track/road, with an arable field located on the western side of the track. A cluster of agricultural buildings situated around a farm yard are located offsite to the south east.

Within the site survey boundary, the vast majority of the site A area comprises an arable agricultural field with narrow margins. An area comprising currently unmanaged semi-improved grassland (TN1) is situated at the eastern extent of the site.

The northern boundary of the site is defined by a public footpath, with an improved grassland strip situated between the site and the field to the north, along the north eastern boundary of the site.

3 mature oak trees (TN2) are situated in the approximate centre of the northern perimeter, adjacent to a shallow, dry drainage ditch. An understorey of blackthorn and bramble is present beneath the trees. The north western boundary of the site is defined by a tree line/hedgerow comprising oak, elm, ivy, blackthorn and bramble (TN3).

The western boundary is not defined by any particular feature other than the track that runs along the western boundary.

The south-western boundary of the site is defined by a managed roadside hedgerow comprising a flailed, hawthorn dominated hedge (TN4).

The southern and eastern boundaries are defined by a combination of garden fencing, species poor hedgerow and vegetation overhang from adjoining gardens.

#### Summary

In summary, site A comprises an open aspect arable agricultural field which is largely ecologically poor given previous and current land use of intensive agriculture. Whilst limited, ecological features comprise the boundary tree lines/hedgerow along the



northern and southern boundary (TN3/TN4), and mature trees on the northern boundary (TN3). With particular regard to potential future developments, it is advised that developments should seek to retain and enhance existing tree lines and hedgerows, and should seek to provide significant new planting and enhancement through infill planting of existing hedgerows/tree lines, creation of woodland strips/buffer zones and installation of significant new planting and ecological enhancements. Further recommendations are identified in Section 5.2.

### **4.3. Potential for Protected Species Impact with Proposals**

The site was assessed for the potential presence of protected species that may have a material impact upon any future development proposals.

The ecological value of the site in respect of the potential presence of and impact upon protected species is considered further in the following sections:

#### **4.3.1. Bats**

All bat species are strictly protected under the Wildlife and Countryside Act 1981 and the Conservation Regulations (Habitat Regulations).

##### Trees/Hedgerows/Foraging/Commuting

As identified in section 4.1, the main body of the site is dominated by arable, agricultural land use. As such, there are no trees/hedgerows within the main body of the site. However, whilst relatively sporadic in cover, hedgerows and tree lines are situated at northern boundary, and to a lesser extent, the southern boundary. With particular regard to the hedgerow on the north-western boundary (TN3), there are reasonably continuous linkages to small blocks of woodland/plantation located offsite. As such, it is possible that hedgerows/tree lines form part of a wider bat commuting and foraging network, though this may be somewhat reduced given the surrounding site context of a largely arable landscape and open aspect of the site.

The majority of trees on/bounding the site are considered to offer at most, low roosting potential, so whilst likely to be part of a commuting/foraging network, would not be considered to offer roosting potential opportunities, and no further investigation would be necessary. However, as identified in section 4.1, there are mature oak trees (TN2) located along the northern boundary. From ground up analysis, these trees would be considered to present moderate levels of bat roosting potential. Therefore, it is considered that survey effort commensurate with a moderate level of potential roosting would present a proportionate and reasonable course of action.

##### Impact Assessment

Whilst a specific proposal is not being assessed, it is considered likely and would be recommended that hedgerow/tree lines be retained where possible in a layout, and enhancement planting undertaken. Given the positioning of tree lines/hedgerows



on boundaries, it is considered that this would be a reasonable, and largely achievable aspiration.

It is considered that any future emerging planning application for a proposed development of a medium to large size would need to be supported by appropriate survey information in order to identify the presence of roosts on site, and to identify how the site is used by bats as part of a wider network. This data would then be used to inform design and appropriate mitigation and enhancement strategies. Therefore, in further surveys would be advisable in order to:

- Identify location of any roosts on site, with particular attention to large trees identified as TN2.
- Identify patterns of usage/species present on site and identify the function of tree lines/hedgerows in the wider landscape in respect of hedgerows/tree lines bounding the site.

Such actions will enable the specific design of mitigation to be tailored based upon the results of the survey data, and for the requirement for any Protected Species licenses to be determined as applicable.

Given the open aspect of the site, it is considered that such works would only be necessary were a medium to large development be proposed, or that it was considered that a feature with roosting potential would be affected by any given proposal. The full scope of survey works necessary would be determined by as part of a development specific PEA. The preliminary scope of advisable works are identified in section 5.2.

#### **4.3.2. Badgers**

Badgers and active setts are afforded protection under the Protection of Badgers Act 1992.

No evidence of any badger activity (active or inactive setts, droppings or latrines) was identified during the survey of the site. Given the arable location, it is considered reasonable and possible that badgers may have a transitory foraging presence on and around the site.

#### **Impact Assessment**

No active/inactive setts/badger activity was identified on site. However, given the active, highly transient and territorial nature of the species, it is advisable that once any proposals are outlined, and a future planning application emerges, that a further walkover be undertaken to confirm absence of active setts/identify active setts and advise upon appropriate actions. Such a survey would be undertaken as part of a project specific PEA.

In addition, given the amount of rabbit and fox activity identified across the site, appropriate precautionary recommendations have been made in section 5.2 to protect badger and other radiating mammals during a future construction phase.



#### 4.3.3. Nesting Birds

Nesting birds and their eggs are broadly protected under the Wildlife & Countryside Act 1981.

Given the arable land use of the main body of the site, short sward margins with little vegetation, it is not considered that the main body of the site presents any significant or notable habitat for nesting.

It is acknowledged that the record search undertaken via EFC identified presence of species of conservation concern including skylark within a 2km radius of the site.

It should be noted that the existing hedgerows/tree lines are likely to present some nesting bird habitat. However, these are features that are situated on boundaries, and ideally, should be largely retainable in the context of possible future development layouts.

As a general point, it should be noted that the main breeding season for birds is between the months of March to September inclusive. Therefore, activities such as ground clearance, hedgerow maintenance/tree works should ideally be avoided during the bird breeding season if possible. If this is not possible a breeding search should be undertaken to confirm presence/absence of nesting prior to works being undertaken.

#### Impact Assessment

Given that the site is largely active, arable agriculture, the majority of the site area is not considered to present notable or significant habitat. In addition, principal boundary features should be largely retainable in the development of a layout.

Any new development should present the opportunity to reinforce existing boundary tree lines with infill planting, in addition to planting of hedgerows/tree lines on boundaries where such features currently do not currently exist, such as the interior of the site that is currently dominated by agriculture. Consequently, it is logical to conclude the inclusion of such features could provide additional nesting/foraging habitat for birds over and above the existing situation.

In addition, as part of considering future landscaping proposals, it is advised that appropriate features be included for species such a skylark, including provision of winter feeding opportunities for the species (weed and seed areas) within a landscaping scheme. Falls in skylark numbers is resultant of loss of foraging habitat, and as such, provision of such habitat within a layout would be advantageous to this and other species.

Recommendations in respect of appropriate enhancements and provision of new nesting/foraging opportunities for birds through new planting on site boundaries/within the main body of the site and habitat box provision have been made in section 5.2 of the report. In addition, creation of grass meadow habitats as part of any future proposals would provide additional opportunities for ground utilising species.



#### **4.3.4. Reptiles**

Reptiles are afforded protection under the Wildlife & Countryside Act 1981, with smooth snake and sand lizard afforded full protection under the same act and the Conservation Regulations (European Habitat Regulations). 2 records of grass snake dating from 2012 were identified approximately 0.2km south east of the site.

As described in section 4.1, the site majority of the site area is dominated by agricultural field with narrow margins. As such, given the most recent land use of the site and absence of potentially suitable habitat, it is not considered that the majority of the site area provides potentially suitable reptile habitat. However, the structure of grasses in the unmanaged area (TN1) in the east of the site does present potentially suitable reptile habitat. Whilst relatively isolated by agriculture, it is of a size and condition that could offer some potential reptile habitat and support a small potential population.

#### **Impact Assessment**

Based upon the evidence above, taking into account the land use of the site and surrounding arable land uses, the vast majority of the site area is not considered suitable to potentially support the species. Therefore, in respect of most of the site area, no surveys are necessary and the risk to the species is considered to be negligible.

However, it should be noted that there are records of grass snake in the area, and with particular regard to the unmanaged semi-improved grassland area (TN1) located in the east of the site, this area may present some small scale, localised potentially suitable reptile habitat. Therefore, should any future proposal affect this grass area, it is advised that a precautionary survey of these areas be undertaken to demonstrate presence/absence and inform mitigation as may be necessary.

Whilst the majority of the site is unsuitable, in respect of the NP, it is worth considering that if land uses change/the fields become disused and neglected, habitat may develop in the future. As such, it is advised that 'development specific' PEA surveys be undertaken once future defined planning applications emerge to identify whether conditions on site have materially altered.

#### **4.3.5. Great Crested Newt**

Great crested newt is strictly protected under the Wildlife and Countryside Act 1981 and the Conservation Regulations (European Habitat Regulations).

No records of the species were identified within the records search undertaken via EFC.

No ponds are located on site. Given the land use as an arable field and surrounding land uses as previously described, it is not considered that the site provides, nor has connectivity to potentially suitable terrestrial dispersal habitat.

In addition, distance from a potentially suitable water body/terrestrial connectivity is also a major factor in significantly reducing the potential suitability of the site to



provide a habitat for great crested newt. The nearest ponds to the site are situated approximately 220m west of the site. However, given the presence of buildings, plantation woodland, a farm track and active arable field between the site and the offsite ponds, it is not considered that the site would have ecological connectivity with the offsite ponds. 4 ponds situated to the south of West Street are discounted given the dispersal barrier provided by the road, and absence of potentially suitable habitat on site.

Whilst it is acknowledged that small numbers of GCN have been known to range significant distances (1km) to colonise new ponds, sometimes over a number of years if connective habitat is suitable, research undertaken by English Nature<sup>1</sup> (now Natural England) indicates that it is most common to encounter them within 50m of a breeding pond, with few moving further than 100m unless significant linear features or suitable terrestrial habitat is involved, when great crested newts can be encountered at distances of between 150m – 200m. At distances, greater than 200-250m great crested newts are hardly ever encountered. This valuation of habitats according to distance from great crested newt breeding ponds has also been adopted as part of Natural England's European Protected Species application form, with specific reference to the guidance provided by Natural England in WMLa14-2.

It is acknowledged that there is no way of identifying whether there are small ponds that may be hidden within any nearby field margins/private gardens. None were immediately visible from site/analysis of mapping data. Identification of such ponds located on private property cannot be reasonably expected as part of this survey/desk study.

#### Impact Assessment

With reference to the guidance provided by Natural England in WMLa14-2, any future proposals would be considered low risk with potential for an offence considered 'highly unlikely' utilising the Natural England license risk assessment as a guiding general principle. This is because the site area is already subject to disturbance as an active arable agricultural field, and does not therefore provide potentially suitable terrestrial dispersal habitat. Taking into account the above, it is not considered that further surveys in respect of this species are required.

#### **4.3.6 Invertebrates**

Given current land use/management of the proposed development site as an arable agricultural field and the lack of vegetative variety of habitats, the main body of the site is not considered to provide notable or potentially significant invertebrate habitat. It is not considered that the vegetative diversity would be significantly more diverse in the late spring/summer months given land use and management.

However, the retention/enhancement of the boundary hedgerows, standing deadwood, installation of new boundary hedgerows/trees and the inclusion of nectar rich plants in the landscaping design, coupled with the installation of 'insect



hotels/bugs boxes,' could provide good invertebrate habitat on the site post-development. Night scented plant species such as evening primrose, honeysuckle and jasmine would also attract moths in the evening, which would in turn attract foraging bats.

Taking into account the above, no further specific consideration in respect of invertebrates is considered necessary. However, it is considered that the site could be enhanced as part of a future development proposal.

#### **4.3.7 Other Species**

The site is not situated in a location, nor provides potentially suitable habitat where other protected species such as hazel dormouse, water vole and otter would be considered at risk. No further surveys/precautions are considered necessary or appropriate.

#### **4.3.8 General Wildlife & Biodiversity**

It is acknowledged that the wider site and development area may be utilised by a range of wildlife species including rabbit, fox, hedgehog, deer etc. The boundaries of the development area and wider site are currently open and as such animals are able to forage across the site to lakes and the wider countryside.

In consideration of brown hare, the site would present as potential habitat. However, development on the site would not isolate the species from arable habitat areas in the wider arable landscape to the north and west. As such, the species viability would not be compromised. However, as a general precaution, covering of trenches and fencing off construction compounds would be advisable during the construction phase.

#### **Impact Assessment**

As part of appropriate due diligence, it is advised that the full range of recommendations identified in section 5.2 be fully implemented, and all reasonable enhancements incorporated into a development proposal such that biodiversity is maximised as part of a future development.

In addition, to enable wildlife to continue using the development area, it is advised that garden boundaries remain relatively open as per the current situation such that wildlife can continue to radiate in the area. This includes the use of permeable boundaries such as tree lines and hedgerows, in addition to leaving hedgehog gaps in any new fencing proposals.



## **5. Conclusion & Recommendations**

### **5.1 Conclusion**

In summary, site A comprises an open aspect arable agricultural field which is largely ecologically poor given previous and current land use of intensive agriculture. Whilst limited, ecological features on site comprise the boundary tree lines/hedgerow along the northern and southern boundary and mature trees on the northern boundary.

The statutory and non-statutory designation search undertaken as part of the desk study identified that the site is not situated within nor bounds any statutory or non-statutory designated locations. However, given the presence of National/International statutory designations within a 2km radius of the site, it is advised that in the context of developing a Neighbourhood Plan, it is worth considering in advance how 'leisure' related impacts to offsite designated locations as a result of a future development proposal can be limited and controlled through provision of onsite open spaces/linkages to existing footpath networks.

With particular regard to potential future developments, it is advised that where possible, any proposal should seek to retain and enhance existing tree lines and hedgerows. In addition, any new development should seek to provide significant planting and enhancements through infill planting of existing hedgerows/tree lines, creation of woodland strips/buffer zones. Enhancements could also include installation of habitat boxes throughout a development site. Such a requirement for the retention of features and ecological enhancements could be written into a Neighbourhood Plan to ensure implementation in a new development, and guide future design layouts accordingly.

Whilst this report has not assessed a specific proposed layout and it should be noted that any future planning application would need to be accompanied by 'development specific' surveys, reports and mitigation strategies, as a guide this report has sought to identify likely presence of protected species where appropriate. Therefore, based upon the results of the survey undertaken, it is concluded that with caveats as identified within this report and in section 5.2, further surveys would be recommended and appropriate in respect of bat, reptile and badger should the site/sections of site be subject to a proposal. In addition, further surveys may be required if over time the land use of the site changes and the site becomes neglected. The need for specific surveys would be determined as part of a 'development specific' Preliminary Ecological Appraisal that would accompany any future application.



## 5.2 Recommendations and Further Action

Following the survey, the following recommendations/actions have been identified in respect of emerging NP:

### Impacts Upon Statutory Designations

- It is likely that any development proposal would need to take into consideration the impact that additional residents (and therefore potential impact of visitors/leisure users) in a medium to large development would have upon the offsite designations, with particular reference to the SPA.
- As such, a Habitat Regulations Assessment (HRA) is likely to be required should a proposed development be considered to be of a sufficient size such that risk of additional visitor impact is a possibility. The HRA is an exercise undertaken by the LPA.
- However, in the context of developing a NP, it is worth considering early on how impacts as a result of a future development proposal can be limited and controlled through provision of open space, linkages to existing footpaths, dog walking areas and interpretation. Such actions can have a significant effect in reducing the impacts upon statutory designations by ensuring that new residents have access to open space and leisure etc, and therefore would not need to visit the designated locations to undertake such pursuits.
- Early identification and pre-planning for such actions will assist the LPA in their determination, and ensure that future developments are location appropriate.

### Retention of ecological features

- It is advised that where at all possible, any future developments should seek to retain the following:
  - Existing tree lines and hedgerows on northern/southern boundaries, (TN3/TN4)
  - Mature trees situated on northern boundary (TN2)



## **Scope of Recommended Ecological Surveys for future Proposals**

### **Bat Surveys**

Further surveys would be advisable in order to:

- Identify location of any roosts on site, with particular attention to large trees identified as TN2.
- Identify patterns of usage/species present on site and identify the function of tree lines/hedgerows in the wider landscape in respect of hedgerows/tree lines bounding the site.
- Such actions will enable the specific design of mitigation to be tailored based upon the results of the survey data, and for the requirement for any Protected Species licenses to be determined as applicable.
- Whilst the ecologist undertaking the site specific surveys and reports relating to a specific application would define the exact scope of surveys (depending on layout/location), the following scope of works would be generally in line with Bat Conservation Trust (BCT) guidelines:
  - In respect of oak trees TN2, one dusk emergence and a separate dawn emergence should be undertaken during May to Sept, with at least one survey undertaken between May and Aug.
  - In respect of forage/commuting, transect surveys comprising one survey visit per season (spring-April/May), (summer-June/July/August) (autumn-September/October).
- Given the open aspect of the site, it is considered that such works as described above would only be necessary were a medium to large development be proposed, or that it was considered that a feature with roosting potential would be affected by a given proposal. The full scope of survey works necessary would be determined by as part of a development specific PEA.

### **Reptile Survey**

- The majority of the site is not suitable to support reptiles. However, if the semi-improved grassland TN1 is affected by a future proposal, a reptile survey is advised.
- Reptile surveys should be undertaken to identify the presence / likely absence of reptile species present on site and inform whether mitigation is required. The survey methodology should comprise a minimum of 7 initial monitoring

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visits using artificial refugia matts. If reptiles are found, up to 15 further visits may be required to establish population size. Surveys can be undertaken between March and early October in suitable conditions, with optimum survey periods comprising late March, April, May and September.

#### Badger Survey

- No active/inactive setts/badger activity was identified on site. However, given the active, highly transient and territorial nature of the species, as a precaution and given the relatively rural location, it is advisable that once any proposals are outlined and a future planning application emerges that a further walkover be undertaken to confirm absence of active setts/identify active setts and advise upon appropriate actions.

#### Nesting Birds

- As a general point for ongoing tree works/ongoing care/maintenance, it should be noted that the main bird breeding season is between the months of March to September inclusive. Ground clearance, and any maintenance works to trees/hedgerows should ideally be avoided during the bird breeding season if possible. If this is not possible a search should be undertaken to confirm presence/absence of nesting prior to works being undertaken.

### **Ecological Enhancements for Future Proposals to consider**

#### Bats & Lighting

- To minimise the risk of disturbance to potential foraging bats (both during and post development), external lighting should be minimised as follows:
  - Brightness of lights should be as low as possible, and in accordance with British Standard Institute (BSI) and Bat Conservation Trust (BCT) guidance. Where possible, low pressure sodium lights are advised.
  - Lighting should not be directed at features that may be utilised by bats such as tree lines, hedgerows and water bodies/water courses.
  - Directional lighting and/or fittings with hoods and cowls should be utilised.
  - Where possible, security lighting should be motion sensitive and timers to minimise the amount of time that lights are on.
  - Where possible, directional low impact solar bollard lighting should be used to illuminate roads, paths and parking areas.



- Increased opportunities for bat commuting/foraging could be created by undertaking infill planting to enhance existing boundary hedgerows, planting of new hedgerows and through the inclusion of significant new planting within the main body of the site.
- The opportunity exists to reinforce existing boundary tree lines with infill planting, creation of a buffer strips, in addition to the planting of hedgerows/tree where no such features currently exists. In addition, proposals may present an opportunity for new tree and hedgerow planting within the site interior. Consequently, it is logical to conclude the inclusion of such features would provide additional nesting/foraging habitat for birds over and above the existing situation currently presented.
- In addition, as part of the wider landscaping proposals, it is advised that appropriate features be included for species such a skylark, including provision of winter feeding opportunities for the species (weed and seed areas) within the landscaping scheme.
- Proposals could include a range of enhancements including wild grass and flower meadows, in addition to creations of new ponds/suds and swales as part of future drainage requirements.
- As part of the proposals, there are opportunities to enhance the proposals through provision of habitat boxes (bird/bat) on trees and integral boxes within buildings. Suggested habitat boxes/plant species are provided within Annex 4.
- To enable wildlife to continue using a future development, it is advised that boundaries remain relatively open as per the current situation such that wildlife can continue to radiate in the area. This includes the use of permeable boundaries such as tree lines and hedgerows, in addition to leaving hedgehog gaps in any new fencing proposals.



## **1. Annex 1 – Legislation & Planning Policy**

### **1.1. Habitat Regulations**

The Conservation of Habitats and Species Regulations transpose Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (Habitats Directive) into English law, making it an offence to deliberately capture, kill or disturb wild animals listed under Schedule 2 of the Regulations. It is also an offence to damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time).

### **1.2. Wildlife & Countryside Act**

The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act (CRoW) 2000 and the Natural Environment and Rural Communities Act (NERC) 2006, consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive), making it an offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, (which includes Cirl Bunting) or its dependent young while it is nesting;
- Intentionally kill, injure or take any wild animal listed under Schedule 5 to the Act; intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act; intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection;
- Pick or uproot any wild plant listed under Schedule 8 of the Act.

Sites of Special Scientific Interest (SSSI) are designated under this Act.

Special Protection Areas (SPA) are strictly protected sites, designated under the Birds Directive, for rare and vulnerable birds and for regularly occurring migratory species.

### **1.3. Natural Environment & Rural Communities Act**

The NERC 2006 places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.

### **1.4. National Planning Policy Framework (NPPF)**

The NPPF has replaced PPS9 with paragraphs 163-170 in respect of conservation and biodiversity. ODPM 06/2005 remains in place. NPPF places a duty on planners to make material consideration to the effect of a development on legally protected species when considering planning applications, with a focus upon sustainable development.

### **1.5. Biodiversity Action Plans**

The UK Biodiversity Action Plan (UKBAP) (Anon, 1995) was organised to fulfil the Rio Convention on Biological Diversity in 1992, to which the UK is a signatory. A list of



national priority species and habitats has been produced with all listed species/habitats having specific action plans defining the measures required to ensure their conservation. Regional and local BAPs have also been organised to develop plans for species/habitats of nature conservation importance at regional and local levels.

### **1.6. Local Development Plans**

County, District and Local Councils have Development Plans and other policy documents that include targets and policies which aim to maintain and enhance biodiversity. These are used by Planning Authorities to inform planning decisions.

### **1.7. Natural England Standing Advice**

Natural England has adopted national standing advice for protected species. It provides a consistent level of basic advice which can be applied to any planning application that could affect protected species. It replaces some of the individual comments that Natural England has provided in the past to local authorities.



## Annex 1a – List of Bird Records

|                             |                            |                        |                       |                          |                        |                      |                        |
|-----------------------------|----------------------------|------------------------|-----------------------|--------------------------|------------------------|----------------------|------------------------|
| Red-legged Partridge        | Water Pipit                | Canada Goose           | Cetti's Warbler       | Common Cuckoo            | Eurasian Hobby         | Whimrel              | Sand Martin            |
| Northern Pintail            | Tree Pipit                 | Barnacle Goose         | Little Ringed Plover  | Blue Tit                 | Common Kestrel         | Whimrel              | Black-legged Kittiwake |
| Northern Shoveler           | Common Swift               | Common Goldeneye       | Common Ringed Plover  | Tundra Swan              | Brambling              | Leach's Storm Petrel | Whinchat               |
| Eurasian Teal               | Great Egret                | Common Buzzard         | Black Tern            | Mute Swan                | Common Coot            | Wheatear             | Whinchat               |
| Eurasian Wigeon             | Grey Heron                 | Sanderling             | Common Black-headed   | Common House Martin      | Common Snipe           | Ruddy Duck           | Eurasian Woodcock      |
| Mallard                     | Ruddy Turnstone            | Dunlin                 | Western Marsh Harrier | Common House Martin      | Common Moorhen         | Osprey               | Common Eider           |
| Garganey                    | Short-eared Owl            | Red Knot               | Northern Harrier      | Great Spotted Woodpecker | Eurasian Jay           | Bearded Reedling     | Common Tern            |
| Garganey                    | Little Owl                 | Curlew Sandpiper       | Long-tailed Duck      | Little Egret             | Black-throated Loon    | Great Tit            | Arctic Tern            |
| Gadwall                     | Common Pochard             | Purple Sandpiper       | Common Pigeon         | Common Bunting           | Great Northern Loon    | House Sparrow        | Sandwich Tern          |
| Greater White-fronted Goose | Tufted Duck                | Pectoral Sandpiper     | Stock Dove            | Yellowhammer             | Red-throated Loon      | Coal Tit             | Little Tern            |
| Greylag Goose               | Greater Scaup              | Little Stint           | Common Wood Pigeon    | Common Reed Bunting      | Eurasian Oystercatcher | European Honey-buzz  | Eurasian Collared Dove |
| Pink-footed Goose           | Bohemian Waxwing           | Little Stint           | Carrion Crow          | European Robin           | Black-winged Stilt     | European Shag        | European Turtle Dove   |
| Eurasian Rock Pipit         | Eurasian Bittern           | Temminck's Stint       | Rook                  | Merlin                   | Barn Swallow           | Great Cormorant      | Tawny Owl              |
| Meadow Pipit                | Brant Goose                | Common Linnet          | Western Jackdaw       | Peregrine Falcon         | Eurasian Wrenneck      | Great Cormorant      | Common Starling        |
| Great Grey Shrike           | Yellow-legged Gull         | Jack Snipe             | Pied Wagtail          | Glossy Ibis              | Pied Avocet            | Red Phalarope        | Little Grebe           |
| Herring Gull                | Bar-tailed Godwit          | Velvet Scoter          | Grey Wagtail          | European Golden Plover   | Goldcrest              | Ruff                 | Common Shelduck        |
| Mew Gull                    | Black-tailed Godwit        | Black Scoter           | Yellow Wagtail        | Grey Plover              | Eurasian Bullfinch     | Ruff                 | Spotted Redshank       |
| Lesser Black-backed Gull    | Common Grasshopper Warbler | Snow                   | Spotted Flycatcher    | Horned Grebe             | Water Rail             | Willow Warbler       | Wood Sandpiper         |
| Great Black-backed Gull     | Common Grasshopper Warbler | Red-breasted Merganser | Eurasian Curlew       | Great Crested Grebe      | Snow Bunting           | Eurasian Magpie      | Common Greenshank      |
| Mediterranean Gull          | Wood Lark                  | Red Kite               | Common Sandpiper      | Black-necked Grebe       | Northern Lapwing       | European Green Wood  | Green Sandpiper        |
| Common Kingfisher           | Sky Lark                   | Northern Gannet        | Eurasian Sparrowhawk  | Duncock                  | Grey Dagger            | Eurasian Spoonbill   | Green Sandpiper        |
| Common Redshank             | Redwing                    | Song Thrush            | Ring Ouzel            | Barn Owl                 |                        |                      |                        |
| Winter Wren                 | Common Blackbird           | Fieldfare              | Mistle Thrush         | Common Murre             |                        |                      |                        |



## 2. Annex 2 – Photographs



Hedgerow along southern perimeter



Main body of site looking north west





Southern boundary of site with neighbouring gardens



Main body of site looking north east





Unmanaged grassland area in east of site



Southern boundary of site with dwellings on West Street





Main body of site looking north west



Footpath along northern boundary





Mature trees along northern boundary



Main body of site looking south west





Hedgerow along north western boundary



Western boundary of site looking south





Woodland / plantation strip located offsite to west

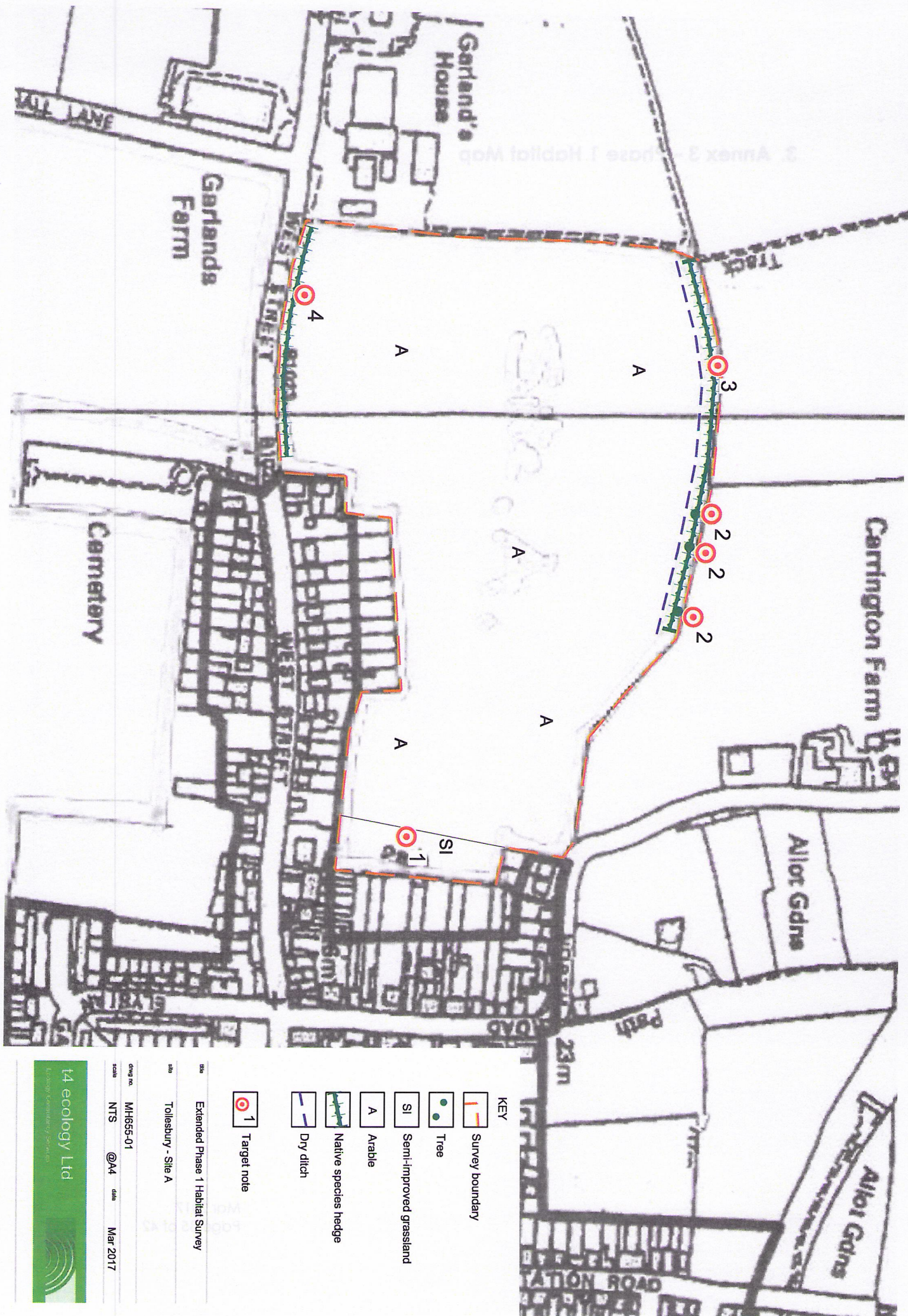


Western boundary of site looking south















KEY

-  Survey boundary
-  Tree
-  Semi-improved grassland
-  Arable
-  Native species hedge
-  Dry ditch

 1 Target note

|           |                                 |       |          |
|-----------|---------------------------------|-------|----------|
| site      | Extended Phase 1 Habitat Survey |       |          |
| site      | Tollisbury - Site A             |       |          |
| drawn no. | MH655-01                        | scale | NTS      |
| date      | @A4                             | date  | Mar 2017 |



## 4. Annex 4 – Recommended Enhancements

The following hedgerow and smaller tree species could be utilised accordingly:

- Hawthorn *Crataegus monogyna*
- Ash *Fraxinus excelsior*
- English Elm *Ulmus procera*
- Field Maple *Acer campestre*
- Hazel *Corylus avellana*
- Dog Rose *Rosa canina*
- Blackthorn *Spiraea nigra*
- Holly *Ilex aquifolium*
- Blackthorn *Prunus spinosa*
- Rowan *Sorbus aucuparia*
- Guelder Rose *Viburnum opulus*
- Silver Birch *Betula pendula*
- Alder *Alnus glutinosa*
- Goldcrest *Colaptes auratus*
- Spindle *Eurosta europaea*

The following species could also be considered within the landscaping scheme as appropriate, given their wildlife friendly characteristics:

- Viburnum *Viburnum* sp.
- Cotoneaster *Cotoneaster* sp.
- Lavender *Lavandula angustifolia*
- Hebe *Hebe* sp.
- Privet *Ligustrum vulgare*
- Dogwood *Cornus sanguinea*

In addition, vertical areas on sides of buildings and/or boundary fences could be utilised to provide additional habitat. Suitable species to grow on vertical habitats could include:

- Ivy *Hedera helix*
- Clematis *Clematis vitalba*
- Honeysuckle *Lonicera periclymenum*



### Recommended enhancements/suitable planting species.

The following hedgerows/shrub and smaller tree species could be utilised accordingly:

- Hawthorn *Crataegus monogyna*
- Ash *Fraxinus excelsior*
- English Elm *Ulmus procera*
- Field Maple *Acer campestre*
- Hazel *Corylus avellana*
- Dog Rose *Rosa canina*
- Elderberry *Sambucus nigra*
- Holly *Ilex aquifolium*
- Blackthorn *Prunus spinosa*
- Rowan *Sorbus aucuparia*
- Guelder Rose *Viburnum opulus*
- Silver Birch *Betula pendula*
- Alder *Alnus glutinosa*
- Cotoneaster *Cotoneaster spp.*
- Spindle *Euonymus europaeus*

The following species could also be considered within the landscaping scheme as appropriate, given their wildlife friendly/native characteristics:

- Viburnum *Viburnum sp.*
- Californian Lilac *Ceanothus sp.*
- Lavander *Lavandula angustifolia*
- Hebe *Hebe Sp.*
- Privet *Ligustrum vulgare*
- Dogwood *Cornus sanguinea*

In addition, vertical areas on sides of buildings and/or boundary fences could be utilised to provide additional habitat. Suitable species to grow on vertical habitats could include:

- Ivy *Hedera helix*
- Clematis *Clematis vitalba*
- Honeysuckle *Lonicera periclymenum*



Bulbs and small, wildlife friendly annuals and biennials can also be utilised within wildlife friendly and garden planting where considered appropriate by the landscape architect. Suitable species could include:

- Hypericum *Hypericum perforatum*
- Wood Anemone *Anemone nemorosa*
- Tustan *Hypericum androsaemum*
- Foxglove *Digitalis grandiflora*
- Bluebell *Hyacinthoides non-scripta*

Dependant on soil condition, British Seed House RE1 mix (or similar product) is recommended for installation of the species rich grass areas where required. Alternatively, turf already seeded with wild flower seed could be utilised.

Recommend species are likely to include:

- Slender Creeping Red Fescue *Festuca rubra ssp litoralis*
- Crested Dogs Tail *Cynosurus cristatus*
- Common Bent *Agrostis capillaris*
- Cocksfoot *Dactylis glomerata*
- Meadow Fescue *Festuca pratensis*
- Golden Oat Grass *Trisetum Flavascence*
- Sweet Vernal Grass *Anthoxanthum odoratum*
- Ribwort Plantain *Plantago lanceolata*
- Yarrow *Achillea millefolium*
- Common Knapweed *Centaurea nigra*
- Meadow Sweet *Filipendula ulmaria*
- Lady's Bedstraw *Galium verum*
- Ox eye daisy *Leucanthemum vulgare*
- Self Heal *Prunella vulgaris*
- Meadow Buttercup *Ranunculus acris*
- Bulbous Buttercup *Ranunculus bulbosus*
- Agrimony *Agrimonia eupatorium*
- Rough Hawkbit *Leontodon hispidus*
- Yellow Rattle *Rhinanthus minor*
- Common Birdsfoot Trefoil *Lotus corniculatus*
- Salad Burnett *Sanguisorba minor*
- Harebell *Campanula rotundifolia*
- Cowslip *Primula deorum*
- Field Poppy *Papaver Rhoeas*
- Wild Thyme *Thymus Serpyllum*
- Quaking Grass *Briza Media*
- Pignut *Conopodium majus*



## **Using Seeds**

### Seed Bed Preparation

Whilst seeds can be sown at any time, the best time to prepare the meadow bed is summer. The top grass, and top inch of top soil should be removed if possible. The most important factor is to ensure that the seed bed is weed free, and level using roller/rake. Also, remove stones in areas of seedbed, Wildflower meadows from seed are most successful when soil fertility is low and weeds can be less vigorous.

### Sowing Seed

The best time to sow the seeds is in spring or early autumn. Spread seeds in a sand mix using a spreader for even distribution at a density of approx. 4 grams per sq. metre.

## **Using Plugs**

Use of wildflower plugs is generally more reliable, and gives quicker results than using seed. However, over large areas, density of plugs can be reduced, with 1 or 2 plugs per square metre. Generally, plugs can be installed at any time but spring/autumn are optimum months.

## **Using Turf Impregnated with seeds**

Use of turf less dependent on soil conditions as the seed are already in place. This enables more variety of species. However, to be successful, it should be installed in free draining areas that do not become water logged.

Wildflower Plugs and seeds are available from a number of online suppliers:

[www.wigglywagglers.co.uk](http://www.wigglywagglers.co.uk)

[www.bostonseeds.co.uk](http://www.bostonseeds.co.uk)

[www.wildflowershop.co.uk](http://www.wildflowershop.co.uk)

[www.reallywildflowers.co.uk](http://www.reallywildflowers.co.uk)

[www.wildflower.org.uk](http://www.wildflower.org.uk)

[www.meadowmania.co.uk](http://www.meadowmania.co.uk)

Sections of turf already seeded are also available from the following suppliers:

[www.meadowmat.co.uk](http://www.meadowmat.co.uk)

[www.wildflowerturf.co.uk](http://www.wildflowerturf.co.uk)

[www.wigglywagglers.co.uk](http://www.wigglywagglers.co.uk)



### **Habitat Boxes.**

The use of bird and bat boxes has been recommend. Suitable products include:



Standard Bird Box-Suitable for a wide variety of species.  
Can be installed in trees and buildings.



Schwegler 2F Bat box. Suitable for attachment to trees.

Boxes are available from [www.wildbirdfood.uk.com](http://www.wildbirdfood.uk.com)

[www.arkwildlife.co.uk](http://www.arkwildlife.co.uk)

[www.theowlbox.co.uk](http://www.theowlbox.co.uk)

[www.nhbs.com](http://www.nhbs.com)



