Tiverton East Urban Extension: Area 2

DRAFT Protected Species and Hedgerow Survey Report

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GLOSSARY

BAP	Biodiversity Action Plan
CBD	Convention on Biological Diversity
CRoW	Countryside and Rights of Way Act 2000
CWS	County Wildlife Site
EU	European Union
Ha	Hectare
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LPA	Local Planning Authority
MAGIC	Multi-Agency Geographic Information for the Countryside
NE	Natural England
NERC	Natural Environment and Rural Communities Act
NPPF	National Planning Policy Framework
OS	Ordnance Survey
OSWI	Other Sites of Wildlife Interest
SAC	Special Area of Conservation
SINC	Site of Importance for Nature Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TN	Target Note
UK	United Kingdom
UWS	Unconfirmed Wildlife Sites
WCA	Wildlife and Countryside Act 1981

1 EXECUTIVE SUMMARY

1.1 Engain was instructed by Waddeton Park to undertake a suite of protected species and habitat surveys for bats, dormice, badgers, otters and water voles and hedgerows within Area 2 of the proposed development site at Tiverton East Urban Extension, Devon.

1.2 This report presents the findings of these surveys and evaluates the potential implications of the proposed development upon species and habitats at the site as well as making recommendations for avoidance, mitigation, compensation and enhancement for biodiversity as necessary to fulfil legal and policy obligations.

1.3 Data search results for protected and notable species within 2km of the site (4 km for bats) and designated sites within 2 – 5km, are presented within the accompanying Ecological Appraisal report (Engain ref. eg12464, November 2012). Reference is also made to the desk study findings in this report.

1.4 Five bat transect surveys (one per month) were carried out at the site from May to September by one or two surveyors at a time. Static dataloggers were also placed on site throughout the survey season at one point on site for three to five nights consecutively. A total of seven species were identified using the site for foraging or commuting. No scarce bat species were recorded although one recording of a possible Western barbastelle was taken from the adjacent site and the species may occasionally use the site in very low numbers.

1.5 75 nest tubes were placed within hedges and woodland on site considered to have potential to be used as places of shelter by dormice (listed on Annex II of the Habitats Directive). Two inspections were made in July and August. Evidence of dormice was found on site during both inspections and these signs were spread across the suitable habitat on site.

1.6 Trees on site were evaluated for potential for roosting bats. A badger survey has been carried out and one possible main sett identified. Signs of both otter (listed on Annex II of the Habitats Directive) and water vole have been identified at the western end of the site along the River Lowman corridor.

1.7 Due to the likely presence of Wildlife and Countryside Act Schedule 5 species, dormouse in most hedgerows on site, these hedgerows are classified as ecologically important under the Hedgerow Regulations 1997. A number of hedgerows are also ecologically important due to floral diversity and associated features.

1.8 Following full implementation of the mitigation and enhancement strategy, it is not considered that ecology poses a significant constraint to the proposed development.

Mitigation

1.9 The majority of the hedgerows and all standard mature trees on site will be retained and enhanced with some minor fragmentation due to access roads or footpaths. Strategic planting will be used to alleviate the impact of newly created gaps. The River Lowman corridor and associated woodland and grassland will be protected and enhanced for dormice and other protected species.

1.10 A detailed mitigation strategy and European Protected Species licence will be required prior to carrying out any works that will affect dormouse habitat including for all hedgerows on site and any wooded areas.

1.11 Should any works to the retained trees be required, further survey may be required and a method statement for encountering bats should be implemented. Should bats be found work will stop immediately and a licensed bat worker will be contacted.

1.12 A Construction Stage Environmental Management Plan, individual mitigation strategy for dormice and a lighting plan will be produced to inform the proposals and development works. Lighting within the site will be kept to a minimum and designed to have a minimal impact on bats using flight paths within the site.

Enhancement

1.13 The site has the potential for ecological enhancement. The development will accommodate the following recommended measures:

- Appropriate local native plant species and features in landscape planting plans to increase species and habitat diversity;
- Planting of additional lengths of native hedgerow and planting standard trees to create new wildlife corridors enhancing connectivity both within and leading off site;
- Installation of bat and bird boxes in existing and new trees as well as on buildings close to natural habitat on the site (once new trees established); and
- An Ecological Management Plan outlining the above will be agreed with statutory consultees prior to commencing works.

2 INTRODUCTION

2.1 Engain was instructed by Strategic Land Partnership to undertake a suite of protected species and habitat surveys for bats, dormice, badgers, otters and water voles and hedgerows within Area 2 of the proposed development site at Tiverton East Urban Extension, Devon.

2.2 The site forms part of the larger Tiverton EUE. The suite of surveys described in this report has been simultaneously conducted on an adjacent part of the Tiverton EUE which lies immediately to the west. The results of these surveys will be used to further inform mitigation recommendations for both sites. As such the proposed mitigation will be designed with consideration for the integrity and functionality of the larger Tiverton EUE site.

2.3 This report presents the findings of these surveys and evaluates the potential implications of the proposed development upon species and habitats at the site as well as making recommendations for avoidance, mitigation, compensation and enhancement for biodiversity as necessary to fulfil legal and policy obligations.

3 LEGISLATION AND POLICY

Relevant Legislation

3.1 The two principal European Union (EU) Directives relating to nature conservation are the EU Habitats Directive (1992)[2] and the EU Birds Directive (1979)[3]. Both of these Directives are transposed into National legislation through the Conservation of Habitats and Species (Amendment) Regulations 2011[4] or the 'Habitat Regulations'

3.2 The EU Habitats Directive[2] makes provision for the designation of wildlife conservation areas as Special Areas of Conservation (SAC). The EU Birds Directive[3] makes provision for the designation of conservation areas for rare and vulnerable birds as Special Protection Areas (SPAs).

3.3 Dormice, all British bats, otters and great crested newts are European Protected Species (EPS) under the Habitat Regulations. It is an offence to:

- Deliberately capture or kill a EPS;
- Deliberately disturb a EPS in such a way as to be likely to significantly affect
  - i) the ability of any significant group of animals of that species to survive, breed or rear or nurture their young, or
  - ii) the local distribution of that species; and
- Damage or destroy a breeding site or resting place of a EPS.

3.4 A EPS licence is required to carry out an otherwise unlawful action affecting these species. A licence will only be granted if the following tests can be met:

- The consented operation must be for "preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment";
- There must be "no satisfactory alternative"; and
- The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their range.

3.5 The Birds Directive is also implemented through the Wildlife and Countryside Act (WCA) 1981[5] (as amended). In addition, the WCA 1981[5] provides protection to other habitats and species at a national level. The Countryside and Rights of Way Act 2000 (CRoW)[6] adds additional enforcement, making offences arrestable, increasing time limits for some prosecutions and increasing penalties.

3.6 The WCA 1981[5] (as amended) with further protection from the CRoW Act 2000[6] makes provision for the designation of Sites of Special Scientific Interest (SSSI).

3.7 Badgers and their sett are protected under the Protection of Badgers Act 1992[7] as amended by The Hunting Act 2004[8].

3.8 The Hedgerow Regulations 1997 protect hedgerows that are important ecologically, historically and in landscape terms. It is illegal to remove or destroy an important hedgerow without permission from the LPA.

3.9 The Natural Environment and Rural Communities Act (NERC) 2006[9] extends the biodiversity duty set out in the CRoW Act 2000[6] to public bodies and statutory undertakers to take due regard to the conservation of biodiversity. Local Planning Authorities (LPAs) should ensure that there is no net loss of biodiversity on a site, no net loss in habitat connectivity and should always aim to enhance biodiversity.

Relevant Policy

3.1 The National Planning Policy Framework (NPPF)[10] sets out the Government's policies for the protection and enhancement of biodiversity through the

planning system. The NPPF encourages the planning system to contribute to and enhance natural and local environments, through minimising the impacts on biodiversity and providing net gains in biodiversity where possible.

3.2 Local planning authorities should follow key principles to ensure that the potential impacts of planning decisions on biodiversity conservation are considered. Circular 06/05: Biodiversity and Geological Conservation[11] provides administrative guidance on the application of the law relating to planning and nature conservation and complements the NPPF.

3.3 The UK Biodiversity Action Plan (UK BAP)[12] is the UK Government's response to the convention on Biological Diversity (CBD) signed in 1992 at Rio de Janeiro, which describes the UK's biological resources and commits a detailed plan for the protection of these resources including priority species and habitats.

3.4 The UK BAP is divided into Local BAPs (LBAPS). The Nature of Devon: A Biodiversity and Geodiversity Action Plan[13] is the LBAP relevant to this site.

"*Each LBAP works on the basis of partnership to identify county and local priorities and to determine the contributions they can make to the delivery of the national Species and Habitat Action Plan targets. Often, but not always, LBAPs conform to county boundaries."* [12].

4 METHODS

Dormouse Survey

4.1 Dormouse nest tubes are an established method of identifying the presence or likely absence of dormice. Survey guidance12 provides an index score for each month that nest tubes are left out. A minimum survey effort index score of 20 is required to assume absence.

4.2 Seventy-five nest tubes were installed on 31 June 2012, at approximately 20 m intervals within hedgerows and on the branches of small trees, within suitable habitat at least 1.5 m above ground level.

4.3 After placement the dormouse tubes were left for two weeks before the surveys commenced. The nest tubes were left on site throughout the year and checked by licenced dormouse ecologist, Georgie Starkie (class licence) during July and August.

4.4 Data recorded during the nest tube inspections include the number of dormice observed using the nest tubes, nest tube number, whether nests are present and whether nest tubes are being used by other species. If dormice were present then biometric measurements including sex, activity (active/torpid), breeding condition and number of young are recorded.

4.5 Nest tubes are left undisturbed if small, pink, furless young are present.

4.6 Surveys were carried out according to standard guidance (Bat Surveys: Good Practice Guidelines 200714 and Bat Mitigation Guidelines, English Nature 200614). The site is considered to be of large size and medium habitat quality with no designated sites for bats and no records of greater horsehoe bats within 5km of the boundary.

4.7 Visual observations were supported by the use of ultra-sonic bat detectors. A combination of heterodyne and frequency division hand held detectors (BATBOX Duet) and frequency division detectors (Anabat) were used, which detect ultrasonic bat calls. The frequencies were recorded for analysis and verification.

4.8 The aim has been to identify which bat species are using which habitats of features on the site, or around it and why eg foraging or commuting.

4.9 The dates and weather conditions of the transect surveys are provided with the results in Appendix 1. The emergence surveys commenced at or just before sunset and continued for two and a half hours after sunset. A dusk and dawn transect was undertaken in September within a 24 hour period. The dawn survey began 2 hours before and continued until dawn.

4.10 To supplement the transect surveys, a static data logger (either an Anabat or SM2) was left on site for between 3 and 5 consecutive nights each month from May to September to record bat activity between sunset and sunrise. The locations of the static dataloggers are shown on Figure 4-1.

4.11 BATBOX Duet recordings were analysed using the sound analysis software 'BatScan', whilst Anabat and SM2 data was analysed with the use of 'Analook'. Within these software packages recordings are displayed as sonograms and the interpulse interval, repetition rate and peak frequency output is visualised. These parameters aid in the identification of bat species.

Tree Inspection Survey for Bats

4.12 The tree inspections were undertaken on 19 June 2012 by an experienced ecologist; Jen Weaver (BSc (Hons) MIEEM).

4.13 The trees on site were inspected visually during daylight hours externally for evidence of usage and current suitability for bats. This involved an assessment of the tree for potential bat roost sites eg splits, cracks, holes and cavities in the trunk and branches, loose bark and ivy cover.

4.14 A search for evidence of bats including oil and urine staining, scratch marks and droppings around holes, was also conducted. Attributing droppings to bats (rather than mice or other small mammals) is straightforward, owing to the dry dusty/crumbly texture of the droppings. Assigning them to a particular species of bat is, however, more difficult and attributions should therefore be taken as probable rather than certain.

Badger Survey

4.15 The badger survey was conducted on 19 June 2012 and 29 September 2012 in good conditions by an experienced ecologist, Jen Weaver. The survey followed Mammal Society Guidelines[6].

4.16 The survey included a thorough search of the site to record all setts within the site boundary and any setts outside on the perimeter of the boundary (where access permitted). A search for signs of badgers eg tracks, latrines, hairs and snuffle holes was also conducted throughout the site.

Otter and Water Vole Survey

4.17 A daytime assessment of suitable habitat at the site was undertaken on 29 September 2012 lead by Jen Weaver, an experienced ecologist. The river banks and associated features were thoroughly searched for signs of otter and water vole activity, including holts/burrows, food remains/grazed lawns, runs, latrine sites/otter spraint, and evidence of feeding and footprints. An assessment of the suitability of the habitat, for the species in question, was also carried out. The river corridor immediately up and down stream of the site was also included in the survey.

4.18 A recently created ditch that runs from the A361, south into the River Lowman was also surveyed.

4.19 This survey was carried out in accordance with guidance set out in the Water Vole Conservation Handbook[4] and the New Rivers and Wildlife Handbook[5].

Hedgerow Survey

4.20 A hedgerow survey was conducted on 19 June 2012 by an experienced ecologist, Jen Weaver. Under the Hedgerow Regulations 1997 a hedgerow is deemed to be ecologically important if:

- It contains, or records exist that it has contained, protected species of birds, animals or plants, listed on schedules 1, 5 or 8 of the Wildlife and Countryside Act 1981;
- It contains certain red data book species that are listed as endangered, extinct, rare or vulnerable including birds, plants, invertebrates or stoneworts;
- It runs along a public right of way and includes at least four woody species, in an average 30 m length and has at least two associated features; and
- The hedgerow includes at least five woody species in an average 30 m length, combined with three or more associated features, further woody species or contains one or more particularly uncommon woody species which are detailed within the hedgerow regulations.

4.21 The survey data was used to assess the ecological value and status of each hedgerow on site according to the Hedgerow Regulations 1997, the UK Biodiversity Action Plan (BAP) and the Devon BAP. Hedgerows with five or more species within an average 30 m length are classed as species-rich.

Great Crested Newt Survey

1.1 Great crested newt surveys were conducted between 14 May 2012 and 31 May 2012 by experienced ecologists. Surveys were lead by:

- James Sweetman NE Licence no. CLS 00385; and
- Liam Russell NE Licence no. (Class Licence).

4.22 The survey methods follow NE Great Crested Newt Mitigation Guidelines13, the Froglife Great Crested Newt Conservation Handbook14 and the Joint Nature Conservation Committee (JNCC) Herpetofauna Worker' Manual15.

4.23 Water bodies within 500 m of the site were first evaluated for the potential to be inhabited by great crested newts. Two waterbodies were then surveyed in more detail for presence/absence of great crested newts. Three methods (torch survey, bottle trapping and egg search) were used per survey visit where possible. Four survey visits were conducted in suitable weather conditions (night-time air temperature >5 °C, no/little wind and no rain).

Survey Limitations

4.24 Due to access constraints it was not possible to include the grounds of Blundell's School within any of the surveys although where relevant these areas were observed from accessible areas of the site.

4.25 In accordance with the updated survey guidance[14] bat transect surveys would ideally have been conducted from April to September, however the surveys commenced in May 2012. Due to the moderate suitability for bats at the site and the level of survey detail subsequently obtained it is considered that the survey effort is sufficient for the purposes of informing the proposals.

4.26 Due to heavy rain during the bat transect survey on 20 August 2012, the survey was cut short by one hour. Rain on the night of 21 September 2012 reduced bat activity in the vicinity of the static datalogger on site.

5 SITE LOCATION AND GENERAL DESCRIPTION

Site Location

5.1 The site is located to the north east of Tiverton and consists of farmland to the north of Blundells Road and to the south of the A361 dual carriageway. The River Lowman and associated woodland, as well as the adjacent business park form the western boundary and residential development lies to the east. The site currently consists of agricultural land, which is grazed by cattle and sheep.

5.2 The Ordnance Survey (OS) grid reference for the centre of the site is SS 978 134.

General Description

5.3 The total area of the proposed site is approximately 18 ha. In a broader context the wider landscape consists of agricultural land with associated hedgerows with Tiverton golf course to the east. The town of Tiverton separates the site from the wider landscape to the south west.

6 SURVEY FINDINGS

6.1 The following section describes the findings of the detailed habitats and species surveys conducted. Data was received from DBRC in April 2012 and the full data search results are detailed in the accompanying Ecological Appraisal report (Engain 2012).

Dormouse Surveys

6.2 Dormouse nests were found within 3 separate nest tubes placed on site during July, August and September. These nests were firmly woven balls of green or browned dead leaves occasionally mixed with honeysuckle bark. No individual dormice were found during the surveys.

6.3 Dormouse nests were found spread across the site within hedgerows adjacent to the woodland at the western end of the site and one nest was found within a species poor hedgerow alongside the A361. Figure 6-1 shows the locations of dormouse signs found.

6.4 The full dormouse survey sheets are shown in Appendix 2.

6.5 There are no statutory sites within 5 km or non-statutory sites within 2 km designated for dormice. Records of dormice were returned immediately adjacent to the site.

Bat Activity Surveys

6.6 The surveys found overall low to moderate levels of bat activity throughout the active season with bats using the site for foraging and commuting. Areas of particular foraging activity were around mature trees at hedgerow junctions as well as over the River Lowman and commuting bats were noted using the eastern woodland edge and hedgerows 1, 5 and 6 commuting across the site from east/west in particular.

6.7 The species diversity recorded overall was moderate although the vast majority of activity recorded was that of common pipistrelle bats, often likely to be repetitively passing surveyors or dataloggers while foraging along hedgerows and around trees. A total of eight species were recorded on site as

follows: common pipistrelle, soprano pipistrelle, noctule bat, Natterer's bat, a long-eared bat species considered likely to be brown long-eared, Daubenton's and whiskered bat.

6.8 Daubenton's bats were regularly recorded foraging over the River Lowman and occasionally flying along hedgerows on site.

6.9 Figure 6-2 shows the locations of transects walked and Figure 6-3 shows the areas of highest foraging and commuting activity. The full survey results are shown in Appendix 1.

Tree Inspection for Bats

6.10 There were two mature oaks and a mature ash tree within hedgerows on the site that could potentially be used by roosting bats. The oak trees have a small amount of rot within lower branches that may provide a roosting opportunities for low numbers of crevice dwelling bats and under ivy cover on all three trees however no evidence of bats was noted. The trees have **low** to **moderate** potential for bats.

6.11 Several trees within the woodland on site were noted to have potential for roosting bats under ivy cover, loose bark and in small rot holes.

6.12 Figure 6-4 shows the location of trees inspected and the level of potential for bats identified.

Badger Survey

6.13 Several records of badgers within 2 km of the site were received from DBRC. At least one of which was for a recent road kill on the A361 on the northern boundary of the site.

6.14 The badger survey recorded limited evidence of badger activity across the site with the exception of a small but likely main sett within a hedge bank at the western end of the site. The main sett consists of four entrances from 1 metre up to 10 metres apart and showed recent digging, tracks and hair outside all entrances.

6.15 Tracks leading away from the sett suggest badgers are using the sunken lane on the western boundary of the site to commute away from the sett. Mammal tracks also led over the opposite hedge bank towards the Blundell's school playing field. Access to the adjacent playing field was not available for the survey, however it is considered likely that badgers are foraging on the amenity grassland there as well as within woodland and pasture on site.

6.16 No latrines or further signs were found during the survey.

Otter and Water Vole Survey

6.17 DBRC returned records of otter within 2 km of the site on a tributary of the River Lowman. The survey found signs of otters along the River Lowman on site. Spraint and the tracks of an adult otter were found during the initial Phase 1 habitat survey, under the A361 on the eastern bank of the river. Recent spraint was found here again during the detailed survey. Further signs were found a short way downstream in the form of a lay-up and old spraint under the roots of a tree on the eastern bank with a slide into the river. There were no potential holt sites found during the survey.

6.18 A rodent, thought to be a water vole due to the size, relative length of tail (approximately half body length) and blunt nose, was seen swimming underwater across the main channel of the River Lowman during the survey. No further signs of water vole were found on the main river channel during the survey however feeding signs suggestive of water vole and one burrow with evidence of grazing at the entrance were found on a recently constructed drainage ditch that flows into the river to the south east of the business park. No further signs such as latrines or tracks were noted although a characteristic sounding 'plop' was heard close to the river which may have been a water vole entering the water.

6.19 The drainage ditch is vegetated with dense sweet grass species and fools watercress with a low species diversity but is of higher suitability for water vole than the adjacent river.

6.20 The River Lowman corridor has low suitability for water voles where it passes through the site. The river has a stronger flow than that usually associated with the species. The banks of the river are extensively eroded by dog walkers and other visitors and are densely shaded by mature trees. Riparian vegetation is sparse, particularly to the north of the stretch and where present is dominated by bramble, hemlock water dropwort (Oenathe crocata) and hawthorn scrub. Occasional burrows found higher up along steep banks are thought likely to belong to brown rat (Rattus norvegicus). Rat holes and runs tend to be bare of vegetation often with a worn shelf leading from the hole.

6.21 Survey findings are shown on Figure 6-5.

Hedgerow Survey

6.22 The site supports a structurally and floristically diverse hedgerow network that is well connected with the surrounding countryside. The majority of hedgerows on site are species rich, Devon hedges, supported by tall hedge banks. The hedgerows along the A361 are species poor (dominated by hawthorn) but large and dense. Due to the presence of dormice on site (a Schedule 5 species) all hedgerows on site should be considered ecologically important, however a number of hedgerows can also be considered important due to species diversity or other associated structural features.

6.23 Woody species recorded within diverse hedgerows include hazel, hawthorn, elder, ash, holly, pedunculate oak, *Rosa* species and blackthorn. Honeysuckle was occasional within the species rich, Devon hedgerows. Ground flora was moderately diverse within the Devon hedgerows, particularly within those along Uplowman Rd and included dogs mercury, hart's tongue fern and foxglove. Ground flora in other species poor hedgerows was poor and dominated by nettle (*Urtica dioica*).

6.24 The full hedgerow survey results are shown in Appendix 3. Figure 6-6 maps the hedgerows on site.

Great crested newt survey

6.25 Full survey results are provided within Appendix 4.

6.26 No great crested newts were recorded during the survey.

6.27 Good numbers of palmate newts were recorded within Pool Anthony pond, approximately 500 m south of the site boundary. The hedgerows and woodland are of most value to the species as hibernation and foraging habitat.

6.28 Figure 6-7 shows the location of ponds surveyed and zone of influence on the palmate newt populations present.

7 EVALUATION, MITIGATION & ENHANCEMENT

Dormice

7.1 Nest tube surveys demonstrate presence and absence and cannot give an accurate representation of the population density of dormice across the site. However, due to the wide spread of signs across the site it is assumed that dormice are present within all suitable and connecting habitat, likely at higher densities within larger, species rich, Devon hedges and at very low density within species poor hedgerows.

7.2 Although studies have shown that dormice can sometimes avoid crossing gaps of as little as three metres, it is considered likely that dormice will occasionally cross the narrow, Uplowmann Road to disperse from or to the site and it is considered likely that dormice are present within all hedgerows on site at varying densities.

7.3 The A361 is likely to be a major barrier to dormouse movement although the corridor of scrub and trees alongside the road may be a dispersal route.

7.4 Connecting habitat exists between suitable on and off-site habitat in the form of an established network of Devon hedges. Woodland fragments are small and scarce in the immediate surroundings of the site and the hedgerow network on site in conjuction with that of the surrounding is considered to support a stable population as well as providing dispersal routes between populations in combination with surroun. The adjacent golf course has potential for the species as well as the limited areas of woodland around the River Lowman to the west and the former railway corridor to the south.

Mitigation

7.5 Dormice are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species (Amendment) Regulations 2011 making dormice a European Protected Species (EPS).

7.6 A EPS licence will be required before any works can be carried out which may disturb or injure a dormouse or damage a place of shelter for dormice, including all hedgerows on site. A detailed mitigation strategy will be required to inform this licence and guide works on site.

7.7 In order to satisfy the Habitat Regulations tests, there must be no loss and wherever possible, an enhancement to the conservation status of the dormouse population on site. The hedgerow network on site should be retained, buffered with additional planting and managed for dormice wherever possible. It is essential that connectivity between hedges on and off-site is maintained overall to allow dormice to continue to move through and off the site.

7.8 Some lengths of hedgerow will be removed as part of the development to create access roads and footpaths into the site. These lengths should be kept to an absolute minimum and be cleared under licence, with careful removal of vegetation down to approximately 30 cm between September and late February, outside of the nesting bird season. Works will avoid disturbance of hedgerow bases where hibernating dormice may be. The removal of this growth will encourage dormice to move into adjacent vegetation in the spring allowing full removal of the hedge base to continue.

7.9 Where longer sections of species rich hedges ae to be removed, translocation of dormice may be required.

7.10 By allowing trees to grow into an arch across gaps or providing gantries or alternative hedgerow connections to compensate for wider gaps, connectivity could be maintained.

7.11 Due to the residential nature of the proposed development there may be an increased conflict between domestic cats moving into the area and dormice. It is known that cats prey on dormice although there is a lack of detailed study regarding the long term impacts cats have on dormouse populations. At present dormice occur within curtilage hedgerows on site immediately adjacent to areas of residential development and as such it is likely some level of predation occurs here already.

7.12 It is important that additional connected habitat is created for dormice to provide opportunities for the population to expand or at the very least to move away from this additional pressure. This habitat should be reasonably isolated from the residential development and it is considered that the area of existing woodland to the west of the site around the River Lowman could be expanded and managed for dormice possibly as new mixed hazel coppice woodland.

7.13 Hedgerows which will be adjacent to residential areas should be fenced to reduce the likelihood of predation from cats.

7.14 A CEMP and EMP should be agreed with the LPA to manage risk to the species and to agree landscaping and management methodologies as well as a monitoring regime pre, post and during construction.

7.15 It is considered that if these mitigation measures are implemented that the status of dormice at the site could be maintained or enhanced.

7.16 The dormouse population on site is considered to be ecologically important at a **county** level and is considered to be sustainable only with maintained connectivity with off-site hedgerow and woodland habitat

Bats

7.17 The hedgerows on site are of particular value to bats and show good levels of connectivity to the surrounding landscape. This connectivity should be maintained or enhanced where possible to retain the ecological value of the site for bats. Creation of new species rich habitats including grassland and woodland will continue to provide foraging opportunities.

7.18 Bats are traditionally very loyal to flight paths, therefore should these hedgerows be removed it is important to ensure that the lighting in this area is managed so as not to displace bats from the area.

7.19 No rare species of bats have been recorded on this site although a moderate species diversity is present and Leisler's bat, recorded on one occasion is restricted in distribution. The majority of activity is that of common pipistrelle and noctule bats, both widespread species, reasonably tolerant of small

increases in light levels, with other species being recorded occasionally. By retaining existing species rich hedgerows and creating new species rich habitats including grassland, a diversity of invertebrate prey will remain available for foraging bats.

7.20 The impact of lighting on bats can be minimised by the use of low pressure sodium lamps[16]. Ensuring that the height of lighting columns in general is as short as possible can also reduce the ecological impact of the development.

7.21 Where it is not possible to use shorter lighting columns light should be directed downwards at an acute angle to thereby reduce horizontal spill. Pedestrian lighting should be below 3 lux at ground level[16].

7.22 Where possible timers should be fitted to lights and adjusted to the minimum required amount of time to reduce the ecological impact of lighting on site.

7.23 It is considered that the assemblage of bats on site is of ecological value at a **local** level.

Tree Inspections

7.24 The mature trees on site will be retained within hedgerows and lighting managed to avoid disturbing bats that may be using these features.

7.25 Should works to these trees be required then a climbing survey or an emergence and dawn activity survey should be carried out to inform as to the use of the tree by bats, prior to works commencing.

Badgers

7.26 Badgers and their setts are protected under the Protection of Badgers Act 19921 as amended by The Hunting Act 20042 which makes it an offence to kill, injure or take a badger or to interfere with a badger sett.

7.27 The main badger sett will be retained in its current location and nearby habitat enhanced with woodland and grassland planting and management. Hedgerow and other wildlife corridor enhancement will be carried out.

7.28 An update survey of the site for badgers will be carried out prior to commencing works on site to evaluate the current status of the sett and any changes in activity across the site. If an active minor badger sett requires closure a NE licence will be required. If closure of a main sett is required a replacement sett should be created and a bait-marking study may be required, depending on the plans, to identify the extent of the badger territory and to ensure that any new sett created will be sited within that territory. An application for a development licence to close a sett can only be submitted to NE once planning permission is granted and licenses are only issued for work to be carried out between 1st July and 30th November.

7.29 During construction, trenches and holes will be covered at night to prevent foraging badgers becoming trapped.

7.30 It is considered that badger movements across the site to the surrounding countryside will not be significantly restricted by the development as the total area of hedgerow planting will be enhanced overall and connectivity off site retained. Foraging opportunities for badger will likely decrease overall due to the loss of arable and pasture land however green space and grassland planting will provide opportunities and the site is considered to support low numbers of badgers in conjunction with the surrounding countryside. A badger tunnel beneath the new access road is not considered to be required as the activity of badgers across the site appears low. Lighting within the development will be uni-directional and low spill and will avoid wildlife corridors wherever possible.

7.31 The site will be planted with native hedgerows, tree species and grassland areas with wildlife plant mixes. The hedgerows/planting will create corridors and some foraging habitat across the site.

Otters

7.32 Otters are known to using the River Lowman corridor for commuting and foraging including the short section on site. No potential holts have been identified on site however a lay-up site is present under a tree within woodland.

7.33 Otters are protected by the WCA 19817 (as amended), the CRoW Act 20008, and the Conservation of Species and Habitats (Amendment) Regulations 20119. It is an offence to willfully or recklessly harm an otter and to destroy, damage or obstruct places used for shelter by otters including lay-up and holt sites. Otters are a species of principal importance under the NERC Act10, a UK BAP11 and LBAP12 species.

7.34 The woodland area and riparian corridor will be retained and enhanced within the proposals with additional planting creating a buffer. There is likely to be an increase in disturbance of the area by dog walkers and residents although this impact will be relatively minor because the area is already used extensively by dog walkers from adjacent housing estates towards Tiverton. Additional green space for residents will be provided within the development. Improvements to footpaths within the woodland and additional planting and management are recommended to further reduce this impact.

7.35 A CEMP is recommended to address control of any potential impacts that could occur to the riparian habitat within and adjacent to the site during construction such as managing run-off towards the watercourse and protecting the surrounding habitat from disturbance.

7.36 An Ecological Management Plan should include objectives to manage and enhance the riparian habitat for otters.

Water Voles

7.37 Habitat suitability for water vole is greater along the riparian corridor to the south of the site where banks are less disturbed and shaded, pooled areas of the river provide slower flows more suitable to the species and the diversity of riparian vegetation is greater.

7.38 Until a recent re-introduction programme to the River Axe in 2009, water voles were thought to be extinct throughout Devon but it appears that water voles are present on site in very low numbers. These individuals may have spread from populations in south-west Somerset. Water voles using the ditch and

parts of the river are likely to use the site in combination with more suitable surrounding habitat immediately up and downstream.

7.39 Water voles are protected by the WCA 19817 (as amended) and the CRoW Act 20008. It is an offence to willfully or recklessly harm a water vole and to destroy, damage or obstruct places used for shelter by water voles. Water voles are a species of principal importance under the NERC Act10 and are a UK BAP11 and LBAP12 species.

7.40 Habitat supporting water voles at the site will be retained and enhanced and as such the development is not thought to pose a significant threat to water voles on site. A CEMP is recommended to address control of any potential impacts that could occur to the riparian habitat within and adjacent to the site during construction such as managing run-off towards the watercourse and protecting the surrounding habitat from disturbance.

7.41 There are limited opportunities for enhancement of the conditions at the site although clearance of woodland to improve light to the river is not recommended due to the value of these habitats to bats and dormice know to be present. Plug-planting or allowing natural regeneration of marginal native species (such as branched bur-reed (Sparganium erectum), bulrush (Shoenoplectus lacustris) and yellow-flag (Iris pseudacorus)) could be carried out along the river corridor to the south west of the site.

7.42 An Ecological Management Plan should include objectives to manage and enhance the riparian habitat for water vole.

Hedgerows

7.43 The hedgerows on site are part of a well-connected and valuable ecological resource creating commuting, dispersal, foraging and breeding habitat for a wide variety of species including dormice, birds, bats, invertebrates, badgers and other mammals. It is important that the connectivity and integrity of this habitat should be maintained or enhanced where possible. All the hedgerows on site are native and as such are a UK BAP habitat.

7.44 The total area of hedgerow, woodland or other connective habitat should be approximately doubled within the new proposals by wildlife corridors being widened and buffered from the new development. Buffer habitat could comprise a mixture of wildflower meadow planting, scrub, woodland and wetland habitat and could be incorporated with a sustainable drainage scheme.

7.45 The hedgerow network on site is considered to be ecologically important at a **local** level.

Great crested newts

7.46 The intervening land use comprises Blundells Road which is likely to act as a minor barrier to the movement of palmate newts from Pool Anthony. There is also good availability of terrestrial habitat surrounding the pond and lying within 250 to 500 m of the pond meaning that palmate newts are likely to use the proposal site in extremely low numbers if at all, due to alternative suitable opportunities.

7.47 The majority of hedgerow on site will be retained with short sections removed to create access. It is considered that ths work poses a negligible risk to palmate newts.

8 CONCLUSIONS

8.1 The proposed development site is considered to be of ecological value at a **local** level overall with some features of higher value such as the hedgerow network, dormouse population and assemblage of bats using the site.

8.2 A Construction Stage Management Plan, a long term Ecological Management Plan, an individual species mitigation strategy for dormice and a lighting plan will be produced to inform the development.

8.3 The site has potential for enhancement through good design practice and principles. Such enhancement should take account of connectivity with the surrounding landscape and biodiversity.

Enhancement

8.4 The site has the potential for ecological enhancement. The development will accommodate the following recommended measures:

- Appropriate local native plant species and features in landscape planting plans to increase species and habitat diversity;
- Planting of additional lengths of native hedgerow and planting standard trees to create new wildlife corridors enhancing connectivity both within and leading off site;
- Installation of bat and bird boxes in existing and new trees as well as on buildings close to natural habitat on the site (once new trees established); and
- An Ecological Management Plan outlining the above will be agreed with statutory consultees prior to commencing works.

8.5 Following full implementation of the mitigation and enhancement, it is not considered that ecology poses a significant constraint to the proposed development.

9 REFERENCES

1. Department for Communities and Local Government, May 2009. Code for Sustainable Homes. Technical Guide. Version 2. http://www.communities.gov.uk/publications/planningandbuilding/codeguide

2. Wildlife and Countryside Act, 1981 (as amended). http://www.england-legislation.hmso.gov.uk/RevisedStatutes/Acts/ukpga/1981/cukpga_19810069_en_1

3. Countryside and Rights of Way Act, 2000. http://opsi.gov.uk/acts/acts2000/ukpga_20000037_en_1

4. European Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:HTML

5. The Conservation of Habitats and Species Regulations 2010. http://www.legislation.gov.uk/uksi/2010/490/contents/made

6. The Natural Environment and Rural Communities (NERC) Act 2006. www.opsi.gov.uk/acts/acts2006/pdf/ukpga_20060016_en.pdf

7. National Planning Policy Framework. Department for Communities and Local Government, March 2012. http://www.communities.gov.uk/documents/planningandbuilding/pdf/2116950.pdf

8. Circular 06/05 – Statutory Obligations and Their Impact Within the Planning System (2005). http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/historicenvironment/pps9/

9. UK Government's Countryside Geographic Information website: www.magic.gov.uk. Site accessed on the 9th March 2010.

10. Bat Conservation Trust, 2007. Bat Surveys - Good Practice Guidelines. Bat Conservation Trust, London.

11. A.J. Mitchell-Jones and A.P McLeish (Eds), 2004. Bat Workers' Manual. 3rd Edition. Joint Nature Conservation Committee.

12. UK Priority Habitats and Species. http://www.ukbap-reporting.org.uk/plans/priority.asp. Site accessed on the XXX 2010.

13. Mitchell – Jones, A.J. 2004. Bat Mitigation Guidelines. English Nature, Peterborough.

14. Natural England Nature on the Map http://www.natureonthemap.naturalengland.org.uk

15. Bat Conservation Trust, January 2008. Bats and Lighting in the UK, Version 2.

16. Bat Conservation Trust, 2012. Bat Surveys - Good Practice Guidelines, 2nd edition. Bat Conservation Trust, London.

17. Showell Farm Ecological Appraisal Report. Engain October 2011. On behalf of Crest Strategic Projects.

18. Extended Phase 1 Habitat Survey. Nicholas Pearson Associates (NPA) July 2008. On behalf of Crest Strategic Projects Limited.

APPENDICES

Appendix I Bat Survey Results

Appendix 2 Dormouse Survey Results

Appendix 3 Hedgerow Survey Results

Appendix 4 Great Crested Newt Survey Results