greenwillows associates ltd

Green Willows Farm, First Turf Fen Drove, Warboys, Cambs PE28 2TZ
Tel: 01487 823198 / 01487 801638 Email: info@greenwillowsassociates.co.uk
www.greenwillowsassociates.co.uk

Ecological Surveys • Habitat Management • Arboricultural Surveys • Vegetation Clearance

Preliminary Ecological Appraisal Report

America Farm, Warmington
[NGR: TL10960 90680]

Project Manager: Hannah Bushnell
Prepared by: Dominic Wright Bsc (Hons)

On behalf of: Bletsoes

May 2021

Registered in England & Wales 5153730 Greenwillows Associates Ltd VAT Registration No: 8345691 07

Registered Office: Green Willows Farm, First Turf Fen Drove, Warboys, Cambs, PE28 2TZ

DOCUMENT CONTROL SHEET

Document Reference: GWA_WARM001_America Farm_PEAR_20210520					
Version	**Purpose of Issue**	**Author(s)**	**Reviewed**	**Approved**	**Date**
001	Preliminary Ecological Appraisal Report	Dominic Wright Bsc (Hons) and Hannah Bushnell BA (Hons)	Jodie Boocock BA (Hons) MSc ACIEEM	Steve Parnwell BA (Hons) MCIEEM FLS FRSA	27/05/2021

Contents

Tables

Appendices

1.0 Executive Summary

1.1 Rationale

Greenwillows Associates Ltd. was commissioned to conduct an ecological appraisal of two buildings and the associated land, hereafter referred to as 'the site'.

The aim of the ecological appraisal was to provide, *inter alia*, an assessment of the likely impacts a proposed scheme might have upon notable and/or protected species and habitats and where such features might be affected, to identify the need for any follow up detailed/specialist surveys and/or mitigation to ameliorate the potential impacts.

The construction proposals relate to the conversion of three agricultural barns into three residential dwellings, although the exact proposals have not yet been finalised.

1.2 Essential Evidence, Conclusions and Recommendations

1.2.1 General Site Description

The site comprises a currently unused, large agricultural barn Structure 1 (S1) with a smaller barn adjoining it on the south-western end (S1a) and a smaller barn Structure 2 (S2) that is currently used as a storage and workshop facility. The immediate surrounding habitat consists of a hardstanding track that runs between the two main buildings and improved grassland with scattered tall ruderal vegetation. There are also fragmented sections of wall still standing adjacent to the large barn (S1 & S1a) that once formed part of a courtyard.

Table One: Conclusions and Recommendations

Potential Receptor	Conclusions	Recommendations
Nesting Birds	Domesticated doves have been observed using S1 for nesting. There is the potential for other birds to use the barns for nesting, with remnant swallow nests also noted. If nests are disturbed during the process of incubation and rearing, then mortality of chicks could occur.	It is recommended that mitigation procedures are followed to avoid impacting on nesting birds and that nesting enhancements are included in the design of the site. See Section 8 for more details.
Bats	External and internal inspection of the buildings found multiple Potential Roosting Features (PRFs) for bats, particularly on S1 and S1a. Structure 1 and S1a have been assessed as having moderate potential for	It is recommended Phase 2 bat surveys be carried out in accordance with the Bat Conservation Trust's most recent guidelines (2016). These would include both emergence and re-entry surveys. See

	supporting roosting bats and Structure 2 has been assessed as having low potential. If roosting bats are present in buildings during any works to the interior or exterior there is a risk of damaging/destroying a roost and injuring/killing/disturbing roosting bats. Any increase in lighting could adversely impact suitability of adjacent habitats for commuting/foraging bats.	section 8 for more details.
Badgers	The site and neighbouring habitat provide suitability to support foraging and commuting badgers. No immediate evidence of badgers was recorded during the survey. If badgers are using the site during the works, there is risk they could become trapped in open pits/trenches.	Mitigation measures to avoid impact on badgers are recommended. See Section 8 for more details.
Great Crested Newts	There are two waterbodies identified within the zone of influence, Pond 1 (P1) is considered to have some suitability in supporting great crested newts. Pond 2 (P2) is seasonally wet with water levels considerably low at the time of surveying and heavily used by cattle, therefore, is not considered suitable for supporting great crested newts. The terrestrial habitats and rubble/spoil mounds within the working areas have some potential in supporting this	Further survey work is recommended on P1 to ascertain likely presence of great crested newts within the working areas. See Section 8 for more details.

	species, however, there is limited connectivity to P1. Works pose a risk of injuring/killing individuals and destroying a resting/sheltering place.	
Reptiles	The tall ruderal vegetation, and piles of rubble offer some potential habitat for sheltering and foraging reptiles, however, these areas have limited connectivity to other suitable habitat. There is a low risk that any ground clearance of potential reptile areas could result in disturbing individuals during hibernation or killing/injuring.	It is recommended that mitigation procedures are followed to avoid impacting on reptiles. See Section 8 for more details.
Barn Owl	Structure 1 and 1a were assessed as having potential to support nesting barn owls. Anecdotal evidence from the landowner confirmed barn owls had used the barn for nesting in the past. However, no evidence of barn owl was recorded during the survey. The site offers limited foraging habitat. If barn owls are utilising the site at the time of the works, then there is a risk of disturbing a Schedule 1 bird. Works carried out in the nesting season could have a detrimental effect on chicks.	It is recommended that mitigation procedures are followed to avoid impacting on barn owl. See Section 8 for more details.
Hedgehog	There is potential for hedgehogs to use the general site for foraging and commuting. Hedgehogs may become trapped in any open	Badger recommendations above regarding trenches/pits apply to hedgehogs too. Mitigation measures to avoid causing harm to hedgehogs are recommended. It is also

	pits/trenches left open at night. The clearance of vegetation poses a risk of injuring/killing individuals. New fencing could restrict movements of hedgehogs, making commuting and foraging difficult.	recommended that access is made in any new boundary fencing for hedgehogs to allow for commuting. See Section 8 for more details.
Invertebrates	There is potential to support a variety of invertebrates within the area of improved grassland in the garden area. The south facing wall of structure 1 was observed to be providing habitat for several bee species including mason bees that were found to be breeding and attempting to nest in the gaps in the brickwork. The tall ruderal vegetation adjacent to the structure was also providing a source of food for the bees utilising the wall, with many bees observed during the survey. Renovation works to the structure consisting of filling in the gaps in the degraded brickwork and re-pointing will result in the loss of nesting habitat for a variety of bees.	It is recommended that mitigation procedures are followed to avoid impacting on invertebrates. See Section 8 for more details.

2.0 Introduction and Terms of Reference

2.1 This report was commissioned to provide *inter alia*:

- An assessment of the likely impacts the proposed scheme might have upon notable and/or protected species and habitats and where such features might be affected to identify the need for any follow up detailed/specialist surveys.
- Recommendations to avoid potential adverse impacts upon notable and/or protected species and habitats identified as potential receptors within the construction footprint or the relevant zones of influence associated with each receptor.
- An informative document for use by the Local Planning Authority as part of the planning process.

2.2 Based on the JNCC (2010) guidelines an Extended Phase 1 Habitat Survey was undertaken by means of a walkover of the site and its immediate environs, including the licensable impact zone relative to the individual species.

2.3 The surveys were based on proposed plans (Dwg No. 1327-03b) provided by the client and on aerial photographs.

2.4 This report outlines the methodology employed to undertake the surveys, results obtained and a discussion of the implications arising there from.

2.5 The areas surveyed are referred to as the 'site'. Anything beyond the site boundary, but within the same land ownership is referred to as 'the wider site'. The area beyond this is referred to as 'neighbouring habitat'.

3.0 Site Location

3.1 The site is situated off Morborne Road, Warmington, Cambridgeshire, PE8 6UP [NGR: TL10960 90680] (see Appendix One).

4.0 Legislation and Policy

4.1 Statutory Legislation

The Conservation of Habitats and Species Regulations 2017, or the 'Habitats Regulations 2017', transposes European Directives into English and Welsh legislation. This has recently been amended to the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) which continues the same provision for European Protected Species after Brexit. Under these regulations, wild animals of a European Protected Species and their breeding sites or resting places are protected. It is an offence to deliberately capture, injure or kill any such wild animal and, in the case of great crested newts, deliberately take or destroy their eggs. It is also an offence to deliberately damage or destroy a breeding site or resting place of any such wild animal.

Wild animals of a European Protected Species are protected from disturbance. Disturbance of such wild animals includes in particular any disturbance which is likely:

(a) To impair their ability:

- *to survive, to breed or reproduce, or to rear or nurture their young; or*
- *in the case of animals of a hibernating or migratory species, to hibernate or migrate, or*

(b) To affect significantly the local distribution or abundance of the species to which they belong.

The Wildlife and Countryside Act 1981 (as amended) adds further protection to wildlife in England and Wales under Part 1. It is unlawful to intentionally kill, injure or take any wild bird or take, damage or destroy the nest of any wild bird whilst the nest is in use or being built. If the bird is included on the Schedule 1 list, it is additionally an offence to intentionally disturb its nest during the breeding season.

Certain species of animal are protected under the Wildlife and Countryside Act 1981 (as amended) by being included in Schedule 5 in respect of certain offences under Section 9. Such offences include:

9(1) Intentional killing, injuring or taking of a Schedule 5 animal,

9(4a) Damage to, destruction of, obstruction of access to any structure or place used by a Schedule 5 animal for shelter or protection,

9(4b) Disturbance of a Schedule 5 animal occupying such a structure or place.

Badgers are primarily protected by the Protection of Badgers Act 1992, under which it is a criminal offence to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so and to intentionally or recklessly interfere with a sett.

Under the Hedgerows Regulations 1997 it is an offence to remove most hedgerows without permission from the Local Planning Authority. Permission for the removal of hedgerows may

be refused if the Local Planning Authority determines any hedgerow to be 'important' under criteria listed in Part II of Schedule 1 of the Regulations.

4.2 Planning Policy

The National Planning Policy Framework relating to biodiversity (NPPF) is both guidance for local governing authorities on the content of their Local Plans and material consideration in determining planning applications. The NPPF has replaced much existing planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. However, the government circular 06/05: 'Biodiversity and Geological Conservation- Statutory Obligations and their impact within the Planning System', which accompanied PPS9, remains valid.

The NPPF places much emphasis on sustainable development and the need for the planning system to perform a number of roles including 'improving biodiversity' by protection of designated sites, priority habitats and priority species, ancient woodland and veteran trees.

The NPPF places more emphasis on ecological networks and their creation and states that the planning system should:

- Avoid, mitigate and compensate for significant harm to biodiversity and protect Sites of Special Scientific Interest and irreplaceable habitats such as ancient woodland.
- Provide a net gain for biodiversity wherever possible and contribute to the Government's commitment to halt the loss of biodiversity.

4.3 Notable Species and Habitats

4.3.1 The UK Biodiversity Action Plan (UK BAP) was drafted for 'Priority' species and habitats in which specific conservation targets were set and are regularly reviewed. UK BAP features do not receive any legal protection *per se*, but have biodiversity value within a national context. The UK BAP also serves as a framework for local biodiversity conservation efforts. UK BAP priority species and habitats were those that were identified as being the most threatened and requiring conservation action under the UK BAP. The original lists of UK BAP priority species and habitats were created between 1995 and 1999, and were subsequently updated in 2007, following a 2-year review of UK BAP processes and priorities, which included a review of the UK priority species and habitats lists. As a result of new drivers and requirements, the 'UK Post-2010 Biodiversity Framework', published in July 2012, has now succeeded the UK BAP. The UK BAP lists of priority species and habitats remain, however, important and valuable reference sources. Notably, they have been used to help draw up statutory lists of priorities in England and BAP species and habitats are still referred to at a local level (JNCC, 2013).

4.3.2 The Natural Environment and Rural Communities (NERC) Act 2006: Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been

drawn up in consultation with Natural England, as required by the Act.

4.3.3 The Section 41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

4.3.4 Section 17 of the Crime and Disorder Act (1998) places a duty on the local authority to *inter alia* "exercise its various functions with due regard to the likely effect of the exercise of those functions on, and the need to do all that it reasonably can to prevent, crime in its area"; this includes prevention of wildlife crime.

4.3.5 The North Northamptonshire Joint Core Strategy 2011 – 2031 states:

Policy 4 – Biodiversity and Geodiversity

"A net gain in biodiversity will be sought and features of geological interest will be protected and enhanced through:

a) Protecting existing biodiversity and geodiversity assets by:

i. Refusing development proposals where significant harm to an asset cannot be avoided, mitigated or, as a last resort, compensated. The weight accorded to an asset will reflect its status in the hierarchy of biodiversity and geodiversity designations;

ii. Protecting key assets for wildlife and geology, in particular the Upper Nene Valley Gravel Pits Special Protection Area and Ramsar Site, from unacceptable levels of access and managing pressures for access to and disturbance of sensitive habitats;

iii. Protecting the natural environment from adverse effects from noise, air and light pollution;

iv. Where appropriate requiring developments to provide or contribute to alternative green infrastructure (Policy 19); and

v. Ensuring that habitats are managed in an ecologically appropriate manner.

b) Enhancing ecological networks by managing development and investment to:

i. Reverse the decline in biodiversity and restore the ecological network at a landscape scale in the Nene Valley Nature Improvement Area (NIA);

ii. Reverse habitat fragmentation and increase connectivity of habitats where possible by structuring and locating biodiversity gain in such a way as to enlarge and/or connect to existing biodiversity assets such as wildlife corridors;

iii. Preserve, restore and create priority and other natural and semi-natural habitats within and adjacent to development schemes.

c) Supporting, through developer contributions or development design, the protection and recovery of priority habitats and species linked to national and local targets. Such measures could include the retention of, and provision of areas of open green space, and hard and soft

landscaping to address habitat and visitor management.

Climate Change and Sustainability

Development needs to respond to climate change through its design, considering measures such as sustainable travel, landscape, planting for biodiversity, and sustainable drainage. It will also be important to consider the impacts on the wider natural environment. Where development will impact through air and light pollution, especially on designated sites, it will only be permitted where measures can be put in place to minimise or eliminate impacts to a level that provides a high standard of protection for health and environmental quality.

Incorporating ecologically sensitive design and features for biodiversity within a development scheme (Biodiversity by Design) can achieve significant improvements for biodiversity. By addressing ecological and green infrastructure aspects early on, design aspects such as site layout, including wildlife corridors can be tailored to provide enhancements and improvements for biodiversity that may not be possible later on within the design process. Measures to encourage biodiversity can include green roofs, planting and landscaping, the use of native species, setting up bird and bat boxes and sustainable drainage systems.

5.0 Methodology

5.1 Desktop Study

A search of the Multi-Agency Geographic Information for the Countryside (MAGIC) website was undertaken with regards to the presence of statutory nature conservation sites within the potential zone of influence. In addition, a high-level screening review of the National Biodiversity Network (NBN) website was undertaken for an indication of the potential presence of protected species within 2km of the survey site; and records held by Northamptonshire Biodiversity Records Centre (NBRC) and Cambridgeshire and Peterborough Environmental Records Centre (CPERC) of protected/notable species and designated sites within 2km of the target site, since 2010, were also consulted. Cambridgeshire and Northamptonshire Bat Groups were also consulted for bat records held within 2km of the site.

A search for waterbodies within 250m of the site was also undertaken using a range of mapping resources, including Google Earth, MAGIC and OS Maps.

A search of the Local Planning Portal was undertaken to identify any previous ecological surveys and planning applications close to the site.

5.2 Field Surveys

5.2.1 Extended Phase 1 Habitat Survey

A walkover of the site was undertaken on 26th April 2021, by Dominic Wright and Hannah Bushnell, based on the JNCC (2010) Handbook for Phase 1 habitat survey.

The Phase 1 Survey was extended to include a search for signs of protected, principal importance and biodiversity action plan priority species and an assessment of the habitats present for their likelihood to support such species (see Annex One). Target notes (TN) are shown on a habitat map in Appendix Two.

5.2.2 Preliminary Roost Assessment - Building Inspection

A building inspection bat survey (including an examination of the internal structures, roof spaces and external spaces of all the buildings on site) was also undertaken on the same date as the walkover. The survey was carried out to assess the current usage of the building by bats and to advise on the impact on bats and legal obligations prior to building work being carried out.

The building inspection was carried out by Hannah Bushnell, and assisted by Dominic Wright, two trained bat surveyors. The building survey involved a thorough internal and external search of all suitable cavities, holes and crevices. All suitable areas and floors were inspected for the following signs:

- Bat droppings;
- Stains around roosting places and entrance points;

- Urine marks;
- Prey remains;
- Areas devoid of cobwebs;
- Live or dead bat;
- Suitable cracks and crevices for bats to enter.

Equipment available for the building survey included various sized torches, close-focusing binoculars and ladders.

Any bat droppings found would have been sampled and sent for DNA analysis (using targeted qPCR) to confirm the species if required.

A scoring system was applied to the building using the following criteria from the Bat Conservation Trust's Good Practice Guidelines (2016):

Low/Negligible probability of bat interest. Buildings in this category have one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by large numbers of bats and therefore unlikely to support a maternity or hibernation roost.

It must be borne in mind that a building from this latter group can become suitable for bats due to refurbishment. This often happens to houses once the attic space has been cleaned and under-felted prior to timber treatment.

Moderate probability of bat interest. The buildings in this category contain one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status with respect to roost type only. Occasionally a light scattering of droppings will be recorded in an attic or a semi-derelict building, which is considered by the surveyor unsuitable for use as a bat roost. The moderate probability of bat interest category can be used based on the surveyor's experience.

High probability of bat interest. This group includes buildings with known roosts or signs of bat occupancy such as droppings and staining at a roost entrance. The structure will have one or more potential roost sites noted that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. The description of high probability buildings will also contain an indication as to the time of the year when it will be occupied by bats i.e. Summer – nursery roost. Winter – hibernation.

5.3 Constraints and Survey Limitations

During the survey, the second floor of S1a was not accessed due to the unsafe nature of the floor, therefore, we were unable to clearly inspect the whole inner roof. However, due to the draughts caused by the missing windows and roof panels and disturbance from nesting doves the conditions are not considered optimal for roosting bats. A large number of gaps and

crevices were present within the external brickwork of S1 and S1a, however, most of these were too high to be inspected using a ladder. Further surveys will ensure this does not result in an overall constraint for ascertaining the usage of the site by bats.

Generally, surveys only provide a 'snap-shot' of information temporally and spatially from which behaviour can be extrapolated to make an ecological evaluation. Ecological conditions can vary on a yearly and seasonal basis.

Waterbodies were identified using multiple mapping sources during the desktop survey. Some waterbodies are not illustrated on maps, particularly those that are small in size and within residential properties. Therefore, some waterbodies may have gone undetected.

6.0 Results

6.1 Background Data

6.1.1 Statutory and Non-Statutory Nature Conservation Sites

Table Two: Statutory and Non-Statutory Nature Conservation Sites

Site Name	Designation	Grid ref	Distance from site	Reasons for designation
Morborne Hill RSV	CWS PRV	TL125913	0.9km E & 1.5km NE	The site qualifies as CWS because it supports frequent numbers of at least 8 neutral grassland indicator species.
W19	PRV	TL121913	1.2km NE	Neutral/calcareous grassland

Nb. CWS= County Wildlife Site, PRV = Protected Road Verge.

6.1.2 Notable Species and/or Protected Species

Within the records consulted, notable species of relevance to the onsite habitats recorded within 2km of the site, within the last ten years, included: badger and barn owl.

Both the Northamptonshire and Cambridgeshire bat groups came back with no records of bats within 2km of the site.

6.2 Field Survey - Habitats

6.2.1 Vegetation

6.2.1.1 Improved Grassland

The immediate habitat surrounding the barns predominantly comprises improved grassland. Species present include perennial rye grass, common nettle; cranesbill sp; red dead-nettle; bristly oxtongue; common mouse-ear; groundsel; spear thistle; dandelion; dock sp; clover sp; chickweed; pineapple weed; shepherds purse; and forget-me-not.

6.2.2 Miscellaneous

6.2.2.1 Buildings

There are two buildings present within the site, the two barn structures which are described in more detail below.

6.2.2.2 Hardstanding

A hardstanding track runs between both structures.

6.2.2.3 Rubble/spoil mounds; other

Adjacent to S1, within the area of the former courtyard, are rubble/spoil (TN37) and spoil mound (TN38), along with rubble/loose bricks that have fallen from S1 (TN39) and a stack of roof tiles (TN40). Sections of brick wall, still standing, also form part of the remnant courtyard.

6.2.3 Neighbouring Habitat

The site is between the villages of Warmington and Morborne in North Northamptonshire, within a predominantly arable landscape. Hedgerows and small woodland copses are also present in the neighbouring area.

6.3 Field Survey – Notable and/or Protected Species

6.3.1 Nesting Birds

All onsite structures have potential to support nesting birds. A colony of breeding doves inhabit S1a on both stories (TN1) and at least one single dove was observed nesting within the degraded brickwork of S1. Remnant nests, including swallow nests, were also found in both structures (TN2). Structures 1 and 1a have some potential for barn owl roosting.

6.3.2 Bats

6.3.2.1 Buildings

The buildings on site were assessed for their potential to support roosting bats, the results of which are given in Table Three.

Table Three: Results of Preliminary Roost Assessment – Building Inspection

Building	Description	Potential Roosting Features (PRFs) and General Comments	Bat Roost Potential H = high, M = moderate, L = low, N = negligible
Structure 1 and 1a	S1 – Large red brick, single-storey barn with pitched concrete slate tiled roof, four large wooden double doors and two smaller doorways. S1a - Two-storey red brick barn with pitched roof and corrugated	External Brickwork significantly degraded in many places including large cracks (TN3). Missing roof panels (west) (TN4). Gaps behind fascia boards on north west side (TN5). Missing bricks along top of wall – gap along whole edge of the western end (TN6).	**M**

	metal roof sheets, windows along the SE aspect. Barns were mostly empty except for a few storage items in S1.	Multiple degraded roof panels with multiple gaps on the west side (TN7). Felt degraded around top of the brickwork edging and gaps between felt and tiling (TN8). Ventilation slits (lead directly into barn) (TN9). Ventilation slits (lead into cavity between double skinned brick wall) (TN10). Gaps between lifted tiles (TN11). Gaps between steel girder and brickwork (TN12). Large cavity of missing bricks (TN13). Gaps between door frame on brickwork on southern side (TN14). Gaps between wooden panels on south facing door (TN15). Absence of windowpanes on rear windows (TN16). Gap between door and surrounding boarding (TN17). <u>Internal</u> Multiple degraded cracks in brickwork (TN18). Tear in inner felt lining (TN19). Gaps between timber lintel and brickwork (TN20). Gaps in brickwork around timber supports (TN21). Gaps around steel girders (TN22). Gaps between adjoining walls (TN23). Loose bricks SW end (TN24.) Remnant swallow nests (TN1). Nesting domestic doves (TN2). No immediate evidence of bats was noted within this structure.	

Structure 2	Modern, brick-built one-story barn with corrugated metal roof with underfelt and asbestos with metal roller shutter doors on the front. Building was divided into three compartments all used as storage/workshops.	<u>External</u> Gaps, providing internal access under roof panels (TN25) Rotten timber roof supports (TN26). Gaps behind fascia (TN27). Degraded concrete under asbestos roof panel (TN28). Rotten fascia boards (TN29). Gaps between timber support & external brickwork (TN30). Gaps between brickwork (TN31). Gaps behind steel wall panels providing internal access (TN32). <u>Internal</u> Remnant swallow nests (TN1). Internal gaps between structure and metal doors as access (TN33). Missing bricks (TN34). Gaps behind items stored against walls (TN35). Slight gap above breeze blocks (TN36).	**L**

6.3.2.2 Foraging/Commuting

The site offers limited foraging/commuting potential for bats with a lack of linear features such as hedgerows and wooded areas. The long grassland may offer minor foraging opportunities.

6.3.3 Badgers

There is suitable habitat for foraging and commuting badgers, although no immediate evidence of badgers or any setts were seen during the survey.

6.3.4 Great Crested Newt

6.3.4.1 Terrestrial Habitat

The habitats on site offer limited opportunities for foraging/commuting and resting/sheltering great crested newts. The improved grassland is suboptimal for supporting great crested newts, however, the rubble/spoil mounds and stacked roof tiles (TN37 - 40)

offer some opportunity for sheltering individuals.

6.3.4.2 Waterbodies

There are no ponds on site, two ponds (P1) and (P2) are located offsite, with P1 located approx. 110m N/W from the site and P2 is approx. 27m west. P1 is fed by drainage run-off from the surrounding arable farmland, aquatic vegetation was present throughout the pond and the water was quite clear. During the survey no evidence of great crested newts was noted, however, the pond was assessed as having 'good, suitability to support great crested newts, toads were also heard at the time. P2 is a clay pit that is used as a drinking pond for cattle, water levels were significantly low at the time of the survey with no aquatic vegetation present.

6.3.4.3 Habitat Suitability Index (HSI) Assessment

The waterbodies within the potential zone of influence were subject to an HSI assessment. The results of this are given in Table Four and the key to the score given in Table Five.

Pond 1 was assessed as having 'good' suitability; Pond 2 was assessed as having 'poor' suitability to support great crested newts.

Table Four: Habitat Suitability Index Scores

Pond reference:	P1	P2
Location	1	1
Pond area	0.55	0.05
Pond drying	0.5	0.1
Water quality	0.67	0.67
Shade	1	1
Fowl	0.67	0.67
Fish	1	1
Ponds	1	1
Terr'l habitat	0.33	0.33
Macrophytes	0.9	0.35
HSI	**0.72**	**0.41**

Table Five: Categorisation of HSI Scores

HSI	Pond Suitability
<0.5	Poor
0.5-0.59	Below Average
0.6-0.69	Average
0.7-0.79	Good
>0.8	Excellent

6.3.5 Reptiles

Due to the exposed nature of the site with little connecting habitat to any suitable areas for reptiles the site is considered sub-optimal to support herpetofauna. If present however, the rubble/spoil mounds and loose bricks (TN37-TN40) could provide some resting/sheltering opportunity.

6.3.6 Barn Owl

There is potential for barn owls to be nesting in Structure 1. Structure 2 is not suitable for nesting barn owl.

6.3.7 Brown Hare

The arable farmland and fields adjacent to the site provide suitable habitat for brown hares, a brown hare was seen during the survey in a neighbouring field. However, the site itself is unlikely to support brown hare due to predominantly comprising buildings and hardstanding.

6.3.8 Hedgehog

The site could support foraging/commuting hedgehogs, however, there is no suitability for resting/sheltering hedgehogs within the site.

6.3.9 Invertebrates

The south-facing wall of structure 1 (TN41) was being used by various species of bee including red mason bee for nesting in the holes within the degraded brickwork. Vegetation adjacent to the wall, specifically the flowering plants, was also providing a food source for the bees using the wall.

7.0 Impact Assessment Criteria

Where possible, features have been subjected to a full impact assessment using the criteria below. For those features where further surveys are deemed necessary, a full impact assessment will be undertaken once sufficient information is available, based on the results of such surveys.

The assessment of the impacts and effects[1] on important ecological features within the Zone of Influence (ZoI) of the Scheme has been based on the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines (2018). This process includes:

- Identification of ecological features likely to be affected;
- Identification of which ecological features are 'important', and therefore should be subject to detailed assessment;
- Characterising whether the effect on these ecological features is 'significant' in terms of the extent, magnitude, duration, reversibility, frequency/timing and whether it is likely to have a positive or negative effect.

7.1 Identifying the Zone of Influence (ZoI)

The 'Zone of Influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This may be confined to within the site boundaries and land immediately adjacent, but for some ecological features may extend beyond the project site. For example, great crested newts (and breeding colonies) could potentially also be affected within 250-500m metres of construction activities, depending on the scale of works and habitats present.

7.2 Evaluation

7.2.1 Determining Importance of Ecological Features and Resources

The CIEEM Guidelines acknowledge that determining importance of ecological features and resources is a complex and subjective process, but it provides key factors to take into consideration. These include geographic context; legal protection or control; site designations and features; habitat type and priority; biodiversity value; species of conservation value (including; population size, distribution and abundance); ecosystem value/natural capital.

Focusing on assessments of biodiversity value, there are various characteristics that can be used to identify ecological resources or features that are likely to be important in terms of biodiversity. These include:

[1] Note: The following definitions are used for the terms 'impact' and 'effect':
Impact – Actions resulting in changes to an ecological feature. For example, the construction activities of a development removing a hedgerow.
Effect – Outcome to an ecological feature from an impact. For example, the effects on a dormouse population from loss of a hedgerow (CIEEM 2018).

- Rare or uncommon species in the local, national or international context;
- Endemic or locally distinct sub-populations of a species;
- Species on the edge of their distribution;
- Notably large populations of animals or concentration of animals considered uncommon or threatened in a wider context;
- Species-rich assemblages of plants or animals;
- Ecosystems and their component parts which provide the habitats required by the above species, populations and/or assemblages;
- Plant communities (and associated animals) considered typical of valued natural/semi-natural vegetation types;
- Habitat diversity, connectivity and/or synergistic associations.

This assessment also measures the contribution to nature conservation interest from non-statutory sites, and the presence of habitats and species which, although not specially protected, are still considered to be of local, regional or national conservation importance.

This latter category includes identification of flora and fauna that are listed as Species of Principal Importance under the Natural Environmental and Rural Communities Act 2006 (NERC), those prioritised under the UK Biodiversity Action Plan (UK BAP)/Local Biodiversity Action Plans (LBAP), as well as Red Data Book Species.

7.2.2 Considering Geographic Context

The following frame of reference[2] is used when considering the importance of an ecological feature:

- International and European;
- National;
- Regional;
- Metropolitan, County, vice-county or other local authority-wide area;
- River Basin District;
- Estuarine system/Coastal cell; and
- Local[3]

[2] Note- this is not a hierarchy
[3] Where appropriate, impacts may also be assessed at the site scale, although it is acknowledged that this can be difficult to assess

7.2.3 Prediction of Ecological Impacts and Effects

This assessment has considered potential impacts on each ecological feature determined as 'important' from all phases of the project. Impacts are characterised, through consideration of their magnitude and/or extent, the route through which they occur (whether direct, indirect, secondary or cumulative) and their duration and their reversibility. Positive impacts are assessed as well as negative ones.

7.2.4 Significance of Effects

The CIEEM guidelines (2018) explain 'significant effect' with the following definition:

"For the purpose of EcIA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local."

A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project.

The following characteristics are considered when describing ecological impacts and effects:

- positive or negative
- extent
- magnitude
- duration
- frequency and timing
- reversibility

Following the characterisation of impacts and effects, an assessment of the ecological significance of an effect is made. The Guidelines promote a transparent approach in which a beneficial or adverse effect is determined to be significant or not, in ecological terms, in relation to: the conservation objectives of the defined site, the structure and functions of the ecosystem(s) and/or the conservation status[4] of habitats or species within a given geographical area. The Guidelines also advise that it is important to consider the likelihood of a predicted impact.

[4] Habitats: conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area
Species: conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

The Guidelines also state that:

"After assessing the impacts of the proposal, all attempts should be made to avoid and mitigate ecological impacts. Once measures to avoid and mitigate ecological impacts have been finalised, assessment of the residual impacts should be undertaken to determine the significance of their effects on ecological features. Any residual impacts that will result in effects that are significant, and the proposed compensatory measures, will be the factors considered against ecological objectives (legislation and policy) in determining the outcome of the application."

For the purposes of this report, a detailed impact assessment has only been presented for residual effects present after mitigation, although the above assessment has been undertaken for each important ecological feature pre-mitigation, to inform the recommendations outlined in Section Eight.

7.2.5 Key Principles Underpinning Recommendations

The following hierarchy of principles underpin EcIA and are followed in the assessment undertaken in this report:

- Avoidance - Seek options that avoid harm to ecological features (for example, by locating on an alternative site). This is the preferred option.
- Mitigation - Negative effects should be avoided or minimised through mitigation measures, either through the design of the project or subsequent measures that can be guaranteed – for example, through a condition or planning obligation.
- Compensation - Where there are significant residual negative ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.
- Enhancement - Seek to provide net benefits for biodiversity over and above requirements for avoidance, mitigation or compensation.

7.2.6 Potential Effects

Based on the results outlined in Section Six, Table Six provides a summary of the important species and habitats that are known to be present and/or have potential to be significantly affected by the proposed construction without mitigation.

Table Six: Potential Receptors

Potential Receptor
Nesting Birds
Bats
Badger
Great Crested Newts
Reptiles
Barn Owl
Hedgehog
Invertebrates

8.0 Impact Assessment, Conclusions and Recommendations

8.1 General Description and Best Practice Recommendations

8.1.1 Conclusions

The site is based between the villages of Warmington and Morborne within the wider arable landscape of North Northamptonshire and is comprised of three barn structures, hardstanding and surrounding improved grassland and ruderal vegetation. Fragmented walls that are part of a remnant courtyard are present adjacent to S1.

The neighbouring habitat consists of improved grassland, a farmhouse to the southwest. To the west and south there is a cattle-grazed pasture with claypit pond used as a water source for the cattle. Surrounding these areas, it is largely arable fields with hedgerows.

8.2 Desktop Search Results - Designated Sites and Notable/Protected Species

8.2.1 Conclusions

There are no statutory designations within 2km of the site. Two non-statutory sites lie to the north-east of the site: Morborne Hill RSV (CWS) and W19 (PRV). Impacts on these sites are not anticipated and further recommendations have therefore not been made.

Within the records consulted, within the last ten years, notable species of relevance to the onsite habitats recorded within 2km of the site included: badger and barn owl.

No records of bats were returned within 2km of the site.

8.2.2 Recommendations

Species-specific recommendations have been detailed below under the appropriate headings for the majority of the species found with the records consulted.

8.3 Nesting Birds

8.3.1 Conclusions

All structures onsite could support nesting birds, with a colony of domesticated white doves (TN1) present in S1a and S1 with a single bird observed nesting externally within the degraded brickwork to the north-east of S1. As these are not native wild birds, only legislation pertaining to the welfare of these birds is relevant. Remnant birds' nests, some identified as being that of swallows (TN2) were also present within all the structures.

Renovation works are likely to cause disturbance to any nesting birds and will result in a loss of suitable nesting habitat. If birds' nests are disturbed during the process of incubation and rearing, then mortality of chicks could occur.

8.3.2 Recommendations

Works to the barns should avoid the bird-breeding season (late February to August inclusive) to avoid damage to nesting birds. To exclude the doves, it is recommended they are humanely encouraged to exit the structure, and that a vertical damp proof membrane is installed in the doorways to prevent them from re-entering. Where works cannot avoid the bird nesting season a nesting bird check will need to be undertaken at least 48 hours prior to any works, any nests present will be avoided and left undisturbed until all chicks have fledged.

It is recommended that the new site plans include a provision of alternative nesting habitats in the form of nest boxes (see Appendix Five).

8.4 Bats

8.4.1 Conclusions

Structure 1 is a large, two-story double-layer brick barn with a concrete tiled pitched roof and S1a adjoins S1 on the western end and is two-storey with a corrugated metal roof. There is open access from S1a into S1. The most notable feature of the barns (S1 & 1a) included the significant degradation of the brickwork, externally and internally. It appears that the structures have been left undisturbed for some time due to the condition and presence of roosting doves internally, predominantly in S1a.

Both these structures were assessed as having 'Moderate' potential to support summer roosting and overwintering bats due to various factors and PRFs recorded, including many potential access points into the structures, such as missing bricks along the top of the wall (TN6) large gaps in the roof (TN7) and glass missing from windows (TN14).

Also recorded were a number of internal and external roosting opportunities throughout both the barns, particularly notable were the gaps within the degraded brickwork across the whole structure (TN3) and within the ventilation slits (S1) that open out into cavities within the double brick wall (TN10). It is considered slightly less likely that roosting bats will be present internally within S1a due to the level of disturbance that will be caused by the large number of doves present, along with the draught permitted by the gaps in the roof and open windows. No immediate evidence for bats was noted within either structure during the survey.

Structure 2 consists of a one-story barn structure comprised of brickwork, corrugated metal roofing with asbestos and timber roofing within the interior. The barn is used primarily for storage and as a workshop space and as such is very cluttered. This structure is considered to have 'Low' potential to support roosting bats with the structure having a small number of PRFs, including gaps under the fascia boards and potential access points into the building which is suitable for supporting a small number of opportunistic bats. However, there is an increased likelihood of disturbance due to the use of the structure as a storage facility and workshop with a lack of any void space for roosting. No immediate evidence for bats was noted within this structure during the survey.

The site possesses little in the way of foraging/commuting habitat for bats and has limited

connectivity to other suitable foraging/commuting habitat, with a lack of woodland/trees and hedgerows within the immediate vicinity of the site.

Works to buildings could result in the destruction/damage or disturbance of a bat roost and risks killing/injuring bats.

Any increase in lighting, around the buildings could adversely impact suitability of these features and habitats for commuting/foraging and/or roosting.

8.4.2 Recommendations

It is recommended that Phase 2 bat surveys are carried out as outlined in Bat Conservation Trust guidelines (Collins, 2016). Emergence/return surveys will need to be undertaken between May and September, with at least two of these carried out between May and August for S1 and S1a with 'Moderate' potential and at least one between May and August for S2 with 'Low' potential.

A full impact assessment of the effect of the proposed development on bats would be undertaken following the results of these surveys which would inform any recommendations for appropriate mitigation.

8.5 Badger

8.5.1 Conclusions

The site and surrounding landscape could support foraging and commuting badgers, there is very minor scope on site to support sett creation. No evidence for badgers or setts was noted during the walkover survey.

If badgers are using the site at the time of the works, then there is a risk of them becoming trapped in any open trenches/pits created during works.

8.5.2 Recommendations

It is recommended to cover any trenches/pits created during the works each night to prevent badgers from becoming trapped. Alternatively, a ramp will be installed in these features to allow badgers to escape.

Following mitigation and/or enhancement measures, no significant effect is anticipated.

8.6 Great Crested Newts

8.6.1 Conclusions

One pond (P1) was identified within 250m of the site during the desk study, during the survey an additional waterbody (P2) was also noted adjacent to the site. P1, 110m north-west of the site, was assessed as having 'Good' suitability for supporting great crested newts. The water level of P2, 27m west, was significantly low during the survey, with a distinct lack of aquatic vegetation and used frequently by cattle present in the field, therefore, conditions were considered sub-optimal to support great crested newts, thus, scoring 'Low' in suitability. Anecdotal evidence from the landowner also suggests the 'pond' is only seasonally wet and

will likely be dry within a couple of months.

The HSI scores were considered along with the suitability of the terrestrial habitats within the working areas, which are considered substandard, due to the mainly arable nature of the surrounding habitats with a lack of suitable connecting habitat between P1 and the site. However, the above average HSI of Pond 1 would indicate further surveying is required. The rubble/spoil mounds (TN37 & 38) along with rubble/fallen bricks (TN39) and stacked roof tiles (TN40) could provide terrestrial resting/sheltering habitat for great crested newts.

If newts are present within working areas, then ground clearance works pose a risk of injuring/killing individuals. The works also pose a risk to any foraging/commuting individuals that may fall into any open trenches/pits created during the works, if left open nightly.

The level of impact on great crested newts cannot be determined at this stage without further survey work.

8.6.2 Recommendations

It is recommended that a Phase 2 eDNA survey for great crested newts is carried out on the waterbody (P1) found within the zone of influence in order to confirm the presence/absence of great crested newts. **Such surveys can only be carried out in the spring months (Apr 15th – June 30th).**

Further recommendations will follow on the outcome of these surveys.

8.7 Reptiles

8.7.1 Conclusions

The site presents limited potential habitat for reptiles, predominantly confined to the piles of rubble/spoil and fallen bricks (TN38 - 40). However, there is also limited connectivity to other suitable foraging/commuting habitat for reptiles.

Any sensitive or suitable areas that are removed without due care could result in injuring/killing individual species.

8.7.2 Recommendations

As a precautionary measure, it is recommended, if required, any rubble/spoil mounds are removed sensitively, by hand, and any reptiles found are safely removed from the working areas and placed within the cover of vegetation.

With proposed mitigation it is assessed there will be no significant effect on reptiles.

Barn Owl

8.7.3 Conclusions

Structures 1 and 1a were assessed as having potential to support nesting barn owls, anecdotal evidence from the landowner suggests barn owls have previously used the barn, however, it was not ascertained how long ago this was. No immediate evidence of barn owl was found

during the survey, however, there is some scope for barn owls to use the barns in the future.

The renovation of S1 and 1a without prior checks could result in disturbing a Schedule 1 bird and works carried out in the nesting season could have a detrimental effect on chicks/owlets.

The renovation of S1 and 1a would be likely to permanently remove a possible barn owl nesting site due to disturbance and the future lack of access / suitable holes or structures for nesting in.

8.7.4 Recommendations

It is recommended structures that have been noted for suitability for nesting barn owls be checked by a licensed barn owl ecologist prior to works or removal. If any barn owls are present, then further recommendations may be given.

Furthermore, it is recommended that compensation be provided for the loss of nesting habitat by providing two barn owl boxes on or very near to the site. (See Appendix Four for further details).

8.8 Hedgehog

8.8.1 Conclusions

There is potential for hedgehogs to use the site for foraging/commuting purposes.

Hedgehogs may become trapped in any pits/trenches created by the works if left uncovered at night and the clearance of vegetation poses some risk of injuring/killing individuals.

8.8.2 Recommendations

Pits/trenches created during the works will be covered up or fenced off each night. If this is not practicable then ramps will be placed in each pit, nightly to allow individuals to escape.

With proposed mitigation it is assessed there will be no significant effect on this species.

8.9 Invertebrates

8.9.1 Conclusions

Several species of solitary bee including red mason bee were observed using the external south facing wall of S1 (TN41). Renovation of the building is likely to remove this habitat permanently.

8.9.2 Recommendations

For mitigation for the loss of bee nesting habitat, during the renovation works it is recommended that a soft mortar is used for any re-pointing works to allow the bees to recolonise the structure and excavate small holes for nesting.

As further enhancement integrated bee bricks can be installed within the south facing wall of S1 along with bee hotels that can be placed within the courtyard area to the south of S1.

9.0 References

Barn Owl Trust Website: https://www.barnowltrust.org.uk/barn-owl-nestbox/barn-owl-nestboxes-building-projects/

BSI (BS 5837:2012) Trees in Relation to Design, Demolition and Construction – Recommendations. British Standards Institute.

BSI (BS 42020:2013) Biodiversity - Code of practice for planning and development. British Standards Institute.

CIEEM, CIRIA, IEMA (2016) Biodiversity Net Gain: Good Practice Guidelines for Development.

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester

Collins, J. (ed.) (2016) Bat surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.) The Bat Conservation Trust, London.

E. A. Essah, S. J. Russell, S. D. Waring, J. Ferguson, C. Williams, K. Walsh, S. Dyer & R. Raynor (2020) Method for evaluating the snagging propensity of roofing membranes in buildings by roosting bats, Building Research & Information, DOI:10.1080/09613218.2020.1763773

EU Habitats Directive: https://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

HMSO (1981) Wildlife and Countryside Act. HMSO, London.

HMSO (1992) Protection of Badgers Act. HMSO, London.

HMSO (1994) Biodiversity The UK Action Plan. HMSO London. Available at: http://jncc.defra.gov.uk/ukbap

HMSO (1997) Hedgerow Regulations. HMSO, London.

HMSO (1998) Crime and Disorder Act, c, 17 (1)(a). HMSO, London

HMSO (2000) Countryside and Rights of Way (CRoW) Act. HMSO, London.

HMSO (2006) Natural Environment and Rural Communities Act 2006. HMSO, London.

HMSO (2017) Conservation of Habitats and Species Regulations 2017. HMSO, London.

Institution of Lighting Professionals & Bat Conservation Trust (2018) Bats and Artificial Lighting in the UK. Bats and the Built Environment: Guidance Note 08/18. Institution of Lighting Professionals

JNCC (2010) Handbook for Phase 1 Habitat Survey. Peterborough.

Ministry of Housing, Communities and Local Government (2019) National Planning Policy Framework

Multi-Agency Geographic Information for the Countryside: http://www.magic.gov.uk/.

National Biodiversity Network Website: https://nbn.org.uk/

NJUG (2007) Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees. The National Joint Utility Group, Volume 4.

North Northamptonshire Council, (2016). North Northamptonshire Joint Core Strategy 2011 – 2031.

Office of the Deputy Prime Minister (2005) Government Circular 06/05: Biodiversity and Geological Conservation- Statutory Obligations and Their Impacts Within The Planning System. ODPM London available at https://www.gov.uk/government/publications/biodiversity-and-geological-conservation-circular-06-2005

Stace, C. (2019). New Flora of the British Isles, 4th Edition. C & M Floristics, Middlewood Green, Suffolk.

Waring, S. D., Essah, E., Gunnell, K. and Bonser, R. (2013). Double jeopardy: the potential for problems when bats interact with breathable roofing membranes in the United Kingdom. Architecture & Environment, 1 (1). pp. 1-13.

10.0 Photographs

S1 - Western end of NW aspect.

S1 - Northern aspect looking east.

S1 - NW aspect.

S1 - NE aspect.

S1 - NE aspect.

S1 - Western end of NE aspect.

S1 - SW aspect.

S1 - Interior of NE end.

S1 – Internal SW ground floor.

S1 – Internal SW end of looking NE.

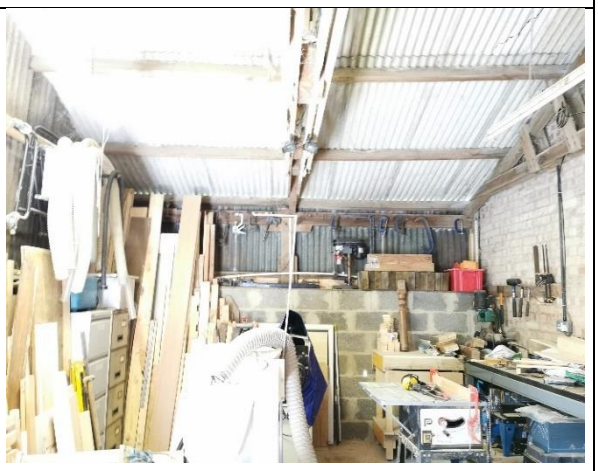
S1 – Unstable ground floor ceiling of SW end.

S1 – Internal of central section looking SW.

S1 - Internal of central section looking NE.

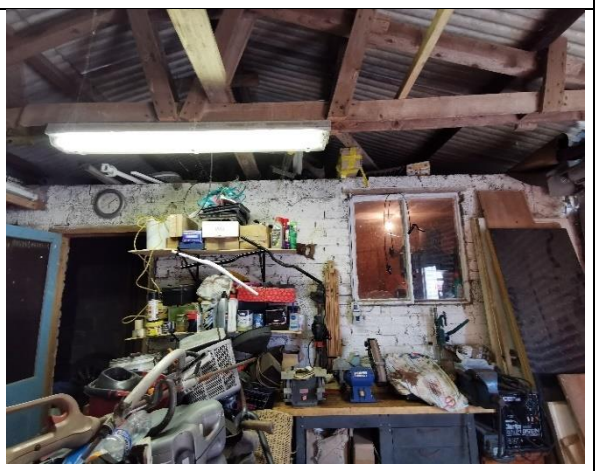
S2 – External SE aspect.

S2 – External NW aspect.



S2 – Internal NE storage/workshop compartment.

S2 – Internal central storage/workshop compartment.



S2 – Internal SW storage/workshop compartment.

S2 – Internal SW end bike storage.

Habitats - Hard standing between the two structures.

Habitats – Improved grassland and ruderal vegetation surrounding barns.

Habitats – Old courtyard area with fragmented walls adjacent to S1.

Pond 1 to the North of the site near Morborne Road.

Pond 2 to the SW of Structure 2 across the access track.

TN1 Nesting doves.

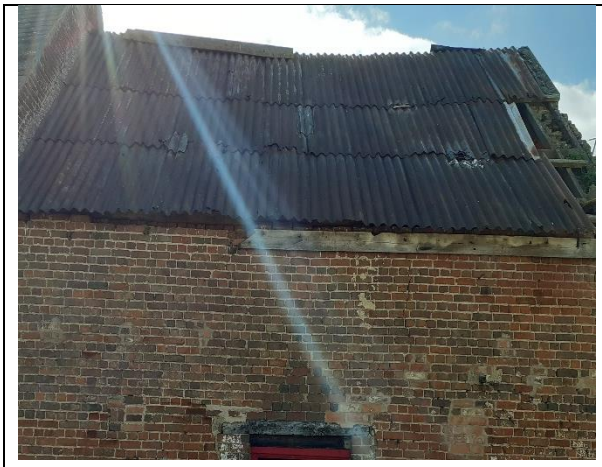
TN2 Remnant bird's nests (nest pictured is a swallows nest).

TN3 Degraded brickwork across whole of S1.

TN4 Missing roof panels SW end S1.

TN5 Gaps behind wooden fascia panel SW S1.

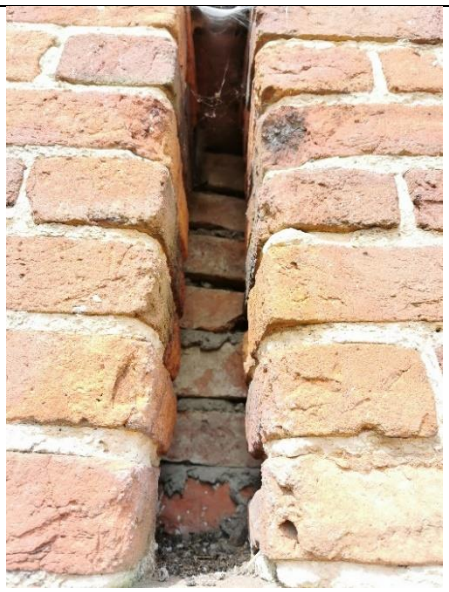
TN6 Missing bricks along top course western end S1.



TN7 Gaps under roof panels west S1.

TN8 Felt degraded and missing between wood and brickwork NW aspect S1.

TN9 Ventilation slits leading directly into S1 (also used by nesting doves).



TN10 Ventilation slits leading into cavity between double brick wall in S1.

TN11 Gaps under lifted tiles S1.

TN12 Gaps between steel girder and brickwork.

TN13 Large cavity of missing bricks, SE corner of S1.

TN14 Gaps between door frame and brickwork SE S1.

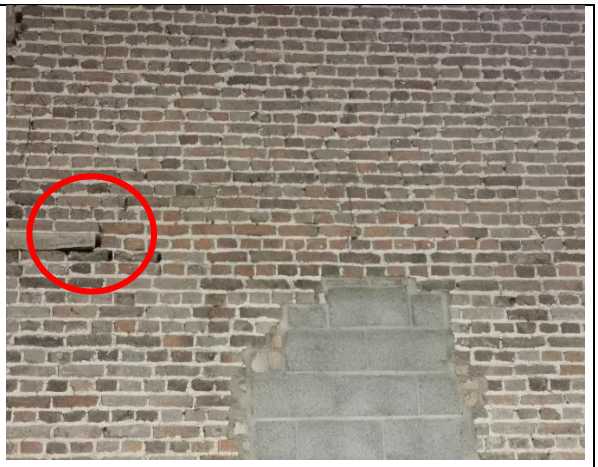
TN15 Gaps between wooden panels of door, providing access points, SE S1.

TN16 Missing panes in windows SE face of S1.

TN17 Gap behind wooden panels of door / eastern end of SE Face S1.

TN18 Multiple cracks in internal brickwork S1.

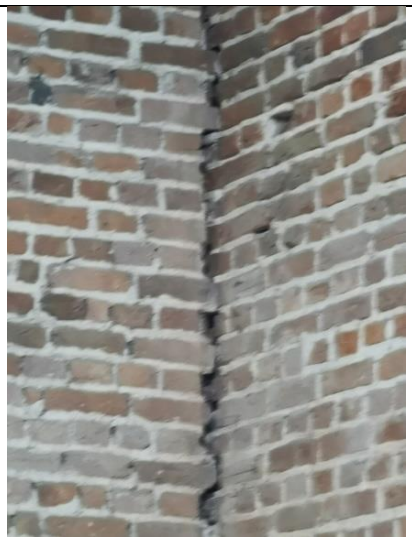
TN19 Tear in felt lining eastern end internal S1.



TN20 Gaps between wooden lintel and brickwork internal S1.

TN21 Gaps in brickwork around timber supports, internal S1.

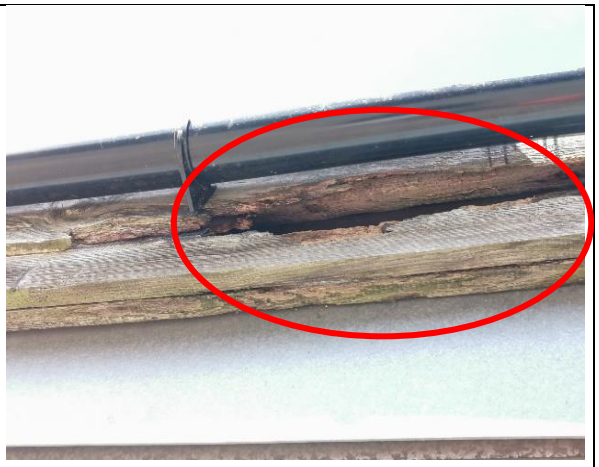
TN22 Gaps around steel girders internal S1.



TN23 Gaps between adjoining walls, internal S1.

TN24 Loose bricks SW end internal S1.

TN25 Gaps under roof sheets S2.

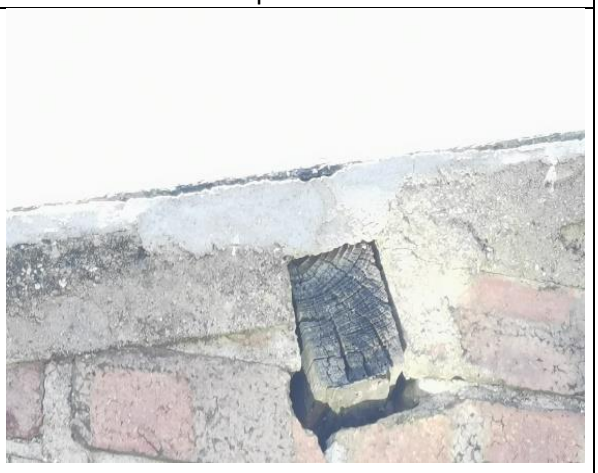


TN26 Rotten timber roof supports S2.

TN27 Gaps behind fascia board.

TN28 Degraded concrete under asbestos roof panel.

TN29 Rotten fascia boards S2.



TN30 Gaps between timber support & external brickwork S2.

TN31 Gaps between brickwork S2.

TN32 Gaps behind steel wall panels S2.

TN33 Cavities behind metal roller shutter door S2.

TN34 Missing bricks S2.

TN35 Gaps behind items stored against walls S2.

TN36 Slight gaps above breeze block wall S2.

TN37 Rubble/spoil mound.

TN38 Spoil mound.

TN39 Fallen bricks.

TN40 Pile of roof tiles.

TN41 Bees nesting in south wall S1.

Blank

11.0 Appendices

Appendix One: Client Proposed Plan

Appendix Two: Location Plan

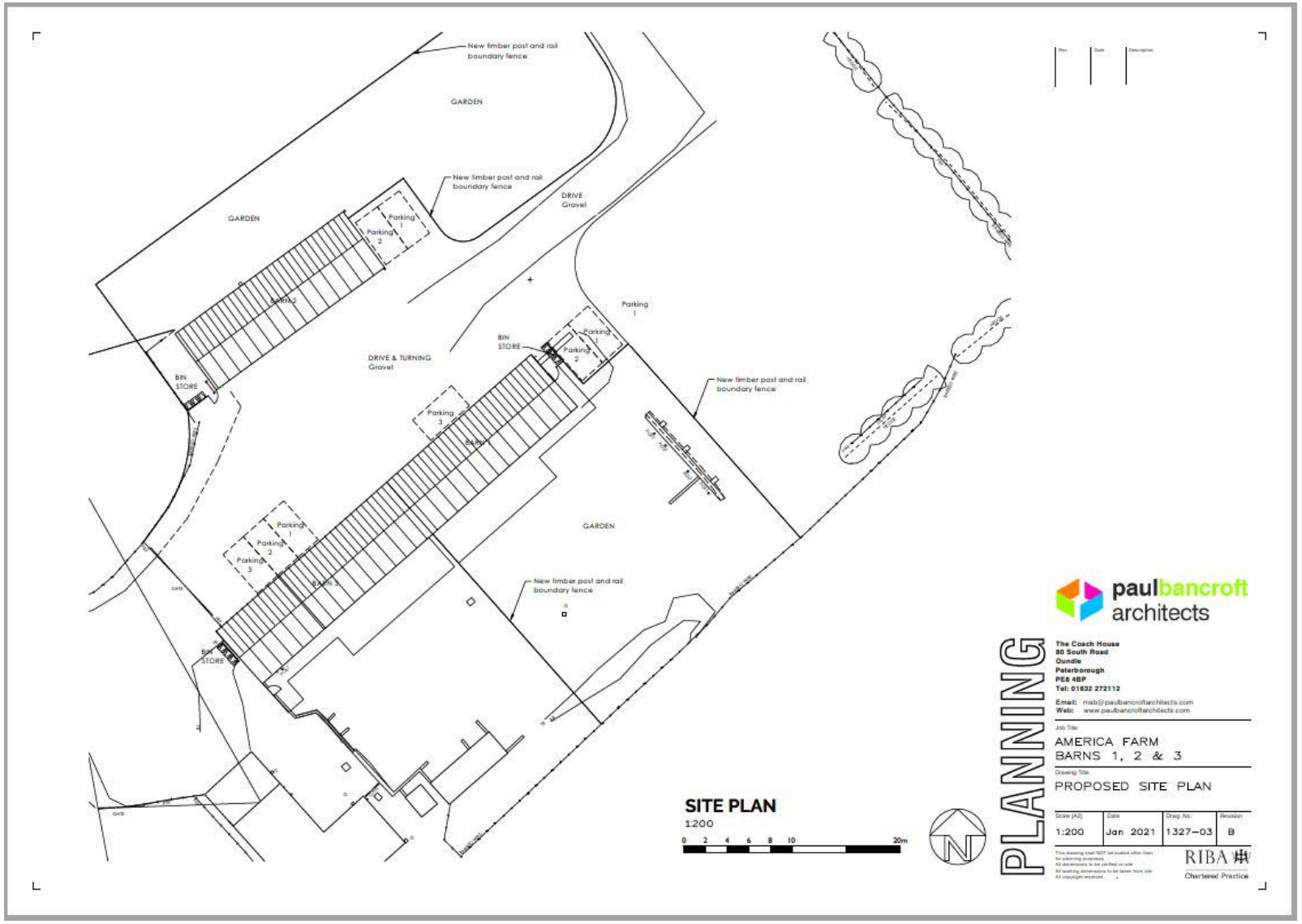
Appendix Three: Habitat Map with Target Notes

Appendix Four: Flora and Fauna Referred to in the Report (Common and Latin Names)

Appendix Five: Examples of Potential Site Enhancements/Mitigation

Annex One: Standard Survey Methodologies

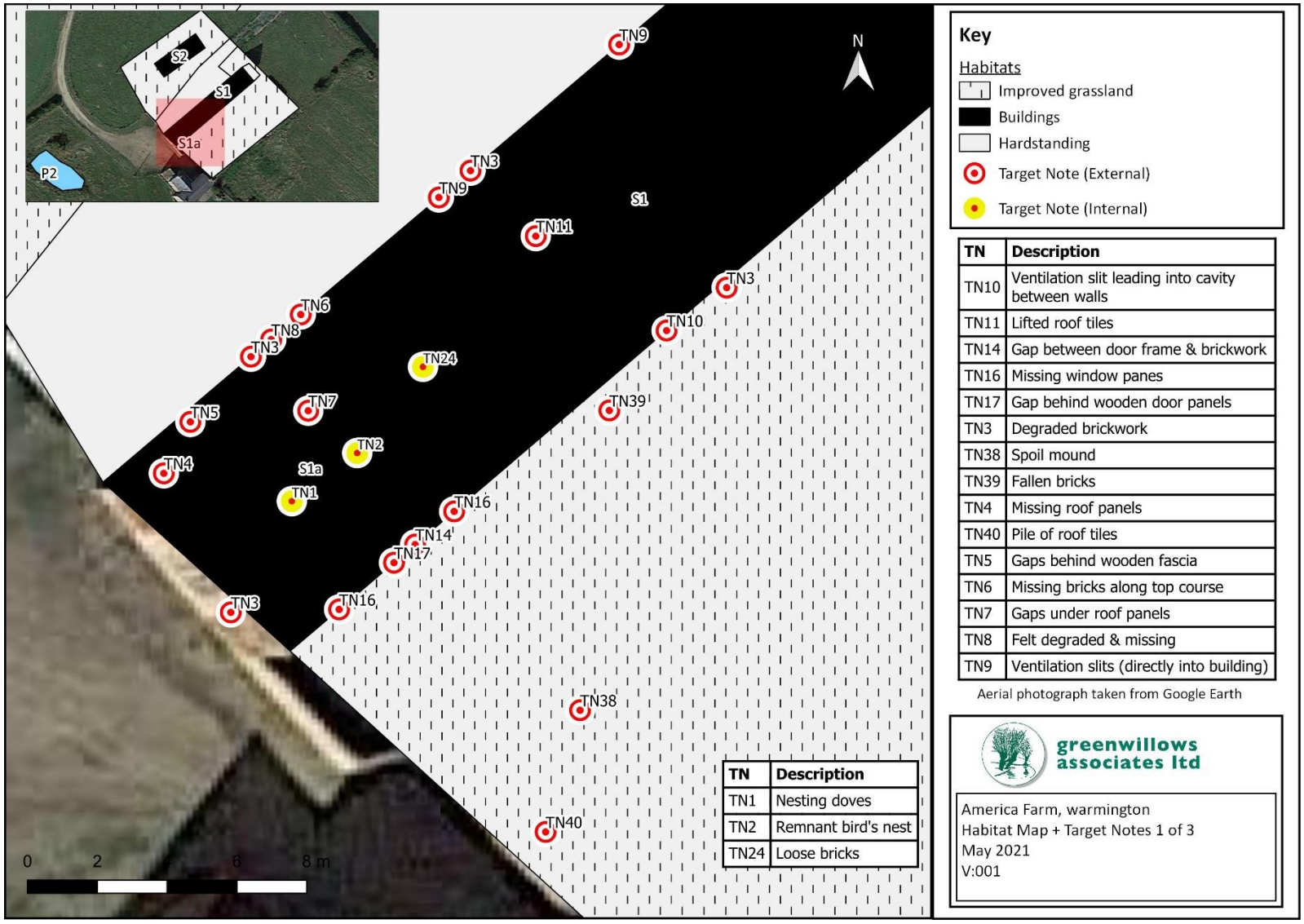
Appendix One: Client Proposed Plan



Internal Reference: WARM001

Appendix Two: Location Plan

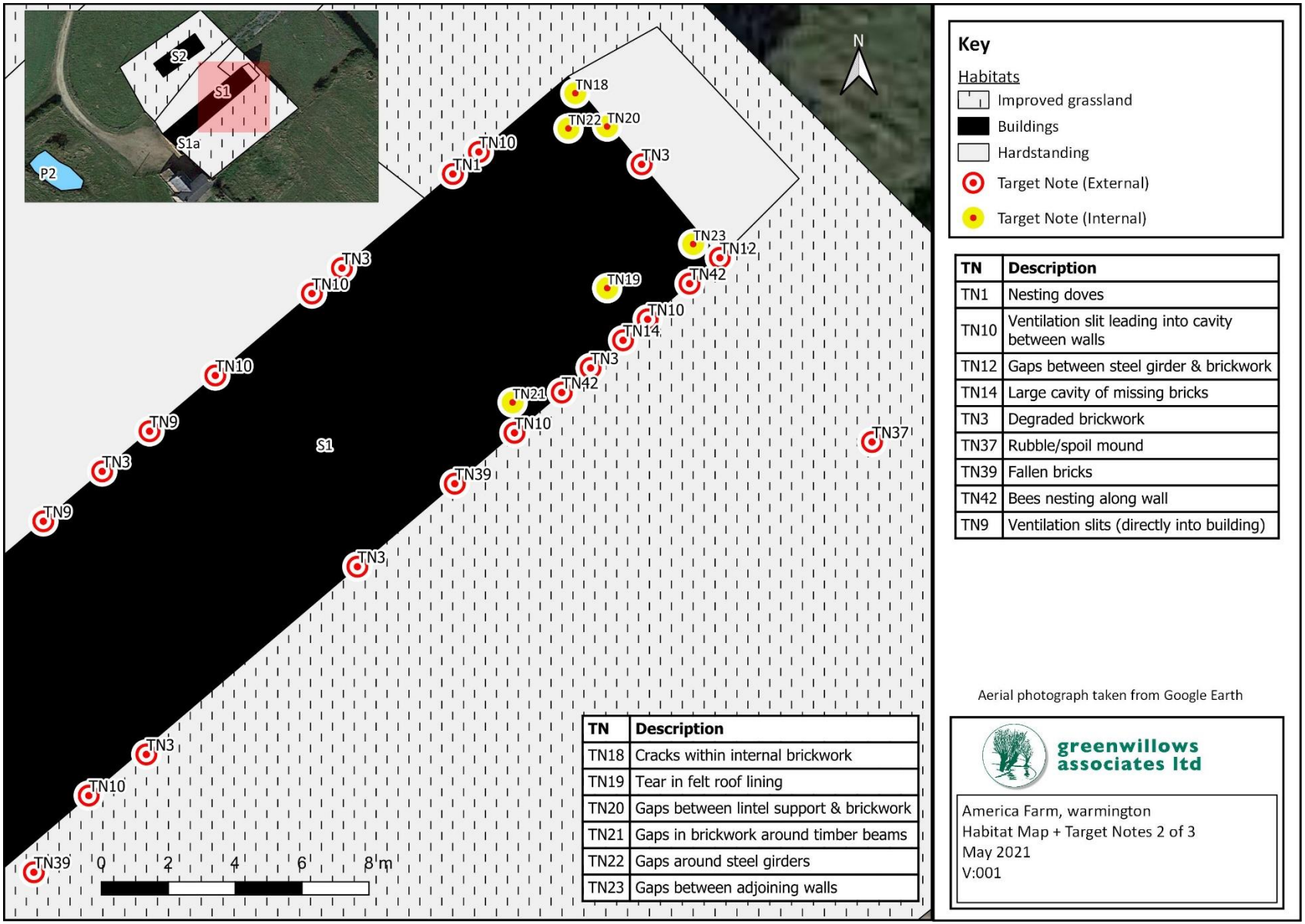
Appendix Two: Habitat Map with Target Notes



TN	Description
TN10	Ventilation slit leading into cavity between walls
TN11	Lifted roof tiles
TN14	Gap between door frame & brickwork
TN16	Missing window panes
TN17	Gap behind wooden door panels
TN3	Degraded brickwork
TN38	Spoil mound
TN39	Fallen bricks
TN4	Missing roof panels
TN40	Pile of roof tiles
TN5	Gaps behind wooden fascia
TN6	Missing bricks along top course
TN7	Gaps under roof panels
TN8	Felt degraded & missing
TN9	Ventilation slits (directly into building)

TN	Description
TN1	Nesting doves
TN2	Remnant bird's nest
TN24	Loose bricks

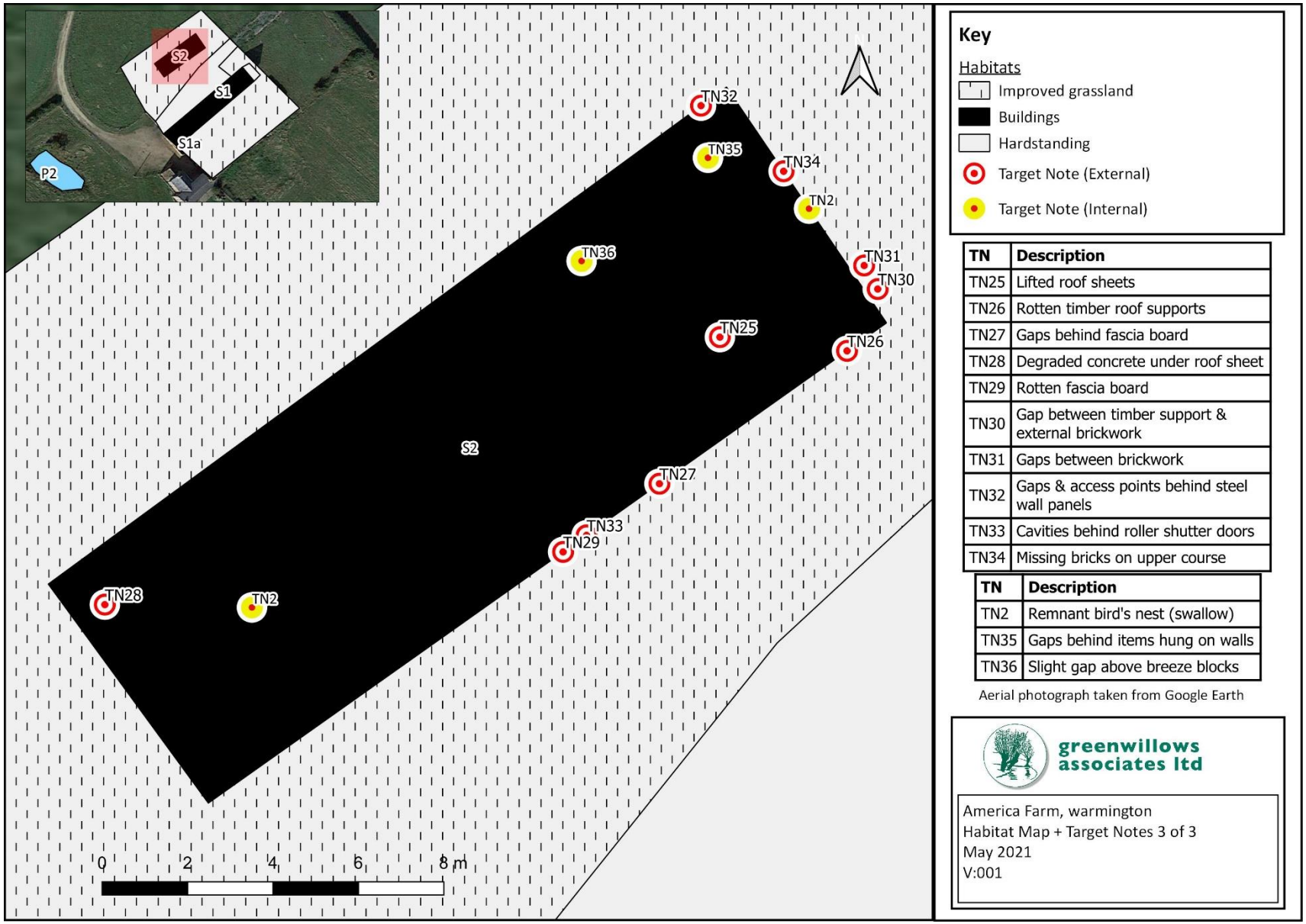
Internal Reference: WARM001



TN	Description
TN1	Nesting doves
TN10	Ventilation slit leading into cavity between walls
TN12	Gaps between steel girder & brickwork
TN14	Large cavity of missing bricks
TN3	Degraded brickwork
TN37	Rubble/spoil mound
TN39	Fallen bricks
TN42	Bees nesting along wall
TN9	Ventilation slits (directly into building)

TN	Description
TN18	Cracks within internal brickwork
TN19	Tear in felt roof lining
TN20	Gaps between lintel support & brickwork
TN21	Gaps in brickwork around timber beams
TN22	Gaps around steel girders
TN23	Gaps between adjoining walls

Internal Reference: WARM001



TN	Description
TN25	Lifted roof sheets
TN26	Rotten timber roof supports
TN27	Gaps behind fascia board
TN28	Degraded concrete under roof sheet
TN29	Rotten fascia board
TN30	Gap between timber support & external brickwork
TN31	Gaps between brickwork
TN32	Gaps & access points behind steel wall panels
TN33	Cavities behind roller shutter doors
TN34	Missing bricks on upper course

TN	Description
TN2	Remnant bird's nest (swallow)
TN35	Gaps behind items hung on walls
TN36	Slight gap above breeze blocks

Aerial photograph taken from Google Earth

Internal Reference: WARM001

Appendix Three: Table Seven Flora and Fauna Referred to in the Report (Common and Latin Names)

Flora	
Common name	**Latin name**
Bristly oxtongue	*Helminthotheca echioides*
Chickweed	*Cerastium glomeratum*
Clover sp.	*Trifolium sp.*
Common mouse-ear	*Cerastium fontanum*
Common mullein	*Verbascum thapsus*
Common nettle	*Urtica dioica*
Cranesbill sp.	*Geranium sp.*
Dandelion sp.	*Taraxacum agg.*
Dock sp.	*Rumex sp.*
Groundsel	*Senecio vulgaris*
Forget-me-not	*Myosotis sp.*
Perennial rye grass	*Lolium perenne*
Pineapple weed	*Matricaria discoidea*
Red deadnettle	*Lamium purpureum*
Shepherd's purse	*Capsella bursa-pastoris*
Spear thistle	*Cirsium vulgare*
Bristly oxtongue	*Helminthotheca echioides*
Fauna	
Common name	**Latin name**
Badger	*Meles meles*
Barn owl	*Tyto alba*
Brown hare	*Lepus europaeus*
Great crested newt	*Triturus cristatus*
Grey partridge	*Perdix perdix*
Hedgehog	*Erinaceus europaeus*
House sparrow	*Passer domesticus*
Red mason bee	*Osmia bicornis*
Skylark	*Alauda arvensis*
Swift	*Apus apus*

Appendix Four: Examples of Potential Site Enhancements/Mitigation

Recommended Bird Boxes

Integrated boxes should be incorporated into building designs and can support a range of species depending on their design. The boxes should have a clear flight path to them to avoid any overhanging branches/materials that could block the box entrance. With the exception of sparrow terraces, boxes, should not be installed in groups side by side but instead spaced out across the face of the building that they are to be installed on.

We recommend that nine boxes should be provided as mitigation for loss of potential nesting habitat on site and to also provide enhancement to meet the LPA's duty under Section 40 of the NERC Act . The examples below are recommended as being suitable for those species that are relevant to the site. They will be installed at a height of 2 m or above, facing between north and east.

Schwegler 1SP Sparrow Terrace.

Sparrow terraces will be fixed on to the surface of a suitable wall or incorporated into the wall and will be installed at a height of 2 m or above.

It is recommended that **three** boxes are provided as mitigation/enhancement for the site.

Schwegler 16 S Swift Box

The Schwegler 16 S Swift Box can be bricked in or installed in the facade. Flush mounting is also possible. If the wall includes insulation the box can also be built into the layer of insulation. In such cases a Fixing Bracket is required. will be installed at 5m or above, with unobstructed access.

It is recommended that **three** boxes are provided as mitigation/enhancement for the site.

The Swallow Nest No. 10 consists of a woodcrete nesting bowl which is attached to a wooden panel of formaldehyde-free chipboard. The nest should be placed inside outbuildings such as sheds, barns or stables leaving a distance of at least 6cm between the top of the nest and the ceiling. It should be ensured there is always access for the birds through an open window or sky-light. Swallows are sociable birds but multiple nests should not be placed at less than 1m intervals. Cleaning of the bowl is recommended, although not absolutely necessary. If this is not practicable then nest modules should be affixed to the top of gable ends with an appropriate covering to protect them from the

elements. It is recommended that **three** boxes are provided as mitigation/enhancement for the site.

It is recommended that two external barn owl boxes are provided on or close to the site by installing a box on a mature tree/post at least 3m from the ground with the box hole facing northwards as mitigation to negate and enhance the affect the renovation would have on the loss of nesting sites. .

Landscape Design

Bat friendly plants which attract, and benefit pollinating insects should be incorporated as part of the landscape design. See Table Eight below for a selection of options:

Table Eight Bat Friendly Planting Suggestions	
Bedding Plants	
Nottingham catchfly	*Silene nutans*
Night-scented catchfly	*S. noctiflora*
Bladder campion	*S. vulgaris*
Night-scented stock	*Matthiola bicornis*
Sweet rocket	*Hesperis natronalis*
Evening primrose	*Oenothera biennis*
Tobacco plant	*Nicotiana affinis*
Cherry pie	*Heliotropun x hybndurr*
Soapwort	*Saponaria officinalis*
Climbers	
European honeysuckle	*Lonicera caprifolium*
Italian honeysuckle	*L. etrusca superba*
Japanese honeysuckle	*L. japonica halliana*
Honeysuckle (native)	*L. periclymenum.*
White jasmine	*Jasminium officinale*
Dog rose	*Rosa canina*
Sweetbriar	*R. rubiginosa*
Field rose	*R. arvensis*
Ivy	*Hedera helix*
Bramble	*- many species*
Large trees, small trees and shrubs	
Oak	*Quercus robur & Q. petrea*
Ash	*Fraxinus excelsior*
Silver birch	*Betula pendula*
Field maple	*Acer campestre*
Hawthorn	*Crataegus monogyna*
Alder	*Alnus glutinosa*
Goat willow	*Salix caprea*
Guelder rose	*Viburnum opulus*
Hazel	*Corylus avellana*
Blackthorn	*Prunus spinosa*
Elder	*Sambucus nigra*
Buddleia	*Buddleja davidii*

Rock plants for walls	
Ivy-leaved toadflax	*Cymbana muralis*
Wall pennywort	*Umbilicus rupestris*
Stonecrop	*Sedum acre bertianum*

ANNEX ONE

Standard Survey Methodologies

A site walkover is undertaken to identify potential habitats suitable for protected species and/or evidence of field signs indicating presence of protected species and invasive plants.

Species Specific Methodologies

Great Crested Newts: A habitat suitability assessment for newts is undertaken taking due note of the presence of water bodies within 250 metres of the site (based on English Nature (2001) now Natural England) guidelines and potentially suitable terrestrial resting and shelter habitat.

At certain times of the year and/or in some years but not others ponds may be seasonally dry but these are not necessarily ruled out as ephemeral ponds can be important 'stepping stones' from one pond to another and/or refuges from the ravages of fish populations that can build up in permanent ponds.

Ponds are assessed using a combination of professional judgment and applying the nationally accepted Habitat Suitability Index (HSI) for Great Crested Newts based on Oldham *et al 2001* which uses nationally accepted formulae based on a number of factors which are assigned a score ranging from 0 to 1 with a score of <0.5 assessed as poor, 0.5 to 0.59 below average, 0.6 to 0.69 average, 0.7 to 0.79 good and >0.8 excellent.

If appropriate, follow-up pond surveys are undertaken in the spring to cover all ponds within 250 metres (or further where professional judgment dictates) of the construction footprint to determine presence/absence of this species. Night-torch surveys, egg searching, netting and funnel trapping are the main methods employed where practicable

Bats: A habitat suitability assessment for bats is undertaken by identifying buildings and trees likely to be affected by the proposed construction works.

The tree assessments involve looking for the following signs:

- Holes
- Fissures
- Broken Limbs
- Loose Bark
- Urine Staining
- Fur Rubbing
- Dense Ivy

A scoring system is applied to the buildings and trees using the following criteria.

- **Low/Negligible probability of bat interest**. Buildings in this category fall into two main types: Generally well maintained without cracks and crevices, no gaps between bargeboard or soffit and wall or without an attic space. Or those which contain some or all of the above features, but are both draughty and thick in cobwebs or contain strong odours such as solvents, diesel etc.

It must be borne in mind that a building from this latter group can become suitable for bats due to refurbishment. This often happens to houses once the attic space has been cleaned and under-felted prior to timber treatment.

No licence is required for development to a building classified as Low probability of bat interest.

Trees with low bat interest are usually young trees without any deadwood or holes. Most conifers fall into this category as they are usually planted as a crop and are then felled prior to becoming old, although once maturity is attained as in a landscape tree, suitable bat roosts may develop.

- **Medium probability of bat interest.** The buildings in this category contain many sites suitable for roosting bats although no obvious signs were recorded during the survey. In exposed conditions on large buildings the signs of bat usage such as droppings and urine marks can be obliterated by heavy rain.

Occasionally a light scattering of droppings will be recorded in an attic or a semi-derelict building, which is considered by the surveyor unsuitable for use as a bat roost. The medium probability of bat interest category can be used based on the surveyor's experience.

Whilst no licence is required for development to a building classified as Medium probability of bat interest, it is often best practice to conduct sensitive roof stripping or architectural salvaging to minimise any possible disturbance.

Trees in this category will have holes, cracks and crevices and lose bark suitable for

roosting bats but no obvious roost signs such as staining and droppings at entrances.

- **High probability of bat interest.** This group includes buildings with known roosts or signs of bat occupancy such as droppings and staining at a roost entrance. The description of high probability buildings will also contain an indication as to the time of the year when it will be occupied by bats i.e. Summer – nursery roost, Winter – hibernation.

A licence is normally required for development to a building classified as High probability of bat interest.

Trees within this category will contain all the obvious roost features such as holes, cracks and crevices and loose bark and will also contain staining and droppings at the roost entrance or have been identified as a roost via a visual sighting of an existing bat.

If appropriate, follow-up surveys are undertaken incorporating detailed inspections of the buildings/trees by a licensed bat worker and where necessary bat activity surveys are also undertaken to determine presence/absence of this group of species.

Reptiles: A habitat suitability assessment for reptiles is undertaken looking for, *inter alia,* areas of rough scrub, tussocky/rank grassland, areas of structural diversity offering short open areas of grassland and bare soil for basking with taller vegetation and habitat edges offering shelter and rapid escape routes, natural refugia such as brash piles and rubble heaps.

Where appropriate, follow-up surveys are undertaken utilizing artificial refugia to determine presence/absence of this species.

Badgers: Field signs are searched for including setts, runs, prints, dung pits, hairs and feeding signs.

Otters: Field signs are searched for including holts, prints, spraints, haul out points and feeding signs.

Water Voles: A habitat suitability assessment for water voles is undertaken within riparian habitat assessment factors including, *inter alia,* water levels and seasonal longevity of water table, seasonal flash floods, bank profiles and substrates, vegetation for cover and suitable food sources, over shading, and evidence of the presence of mink. Where appropriate, follow-up surveys are undertaken where field signs are searched for including burrows, prints, runs, droppings, latrines and feeding signs.

White-Clawed Native Crayfish: A habitat suitability assessment for crayfish is undertaken within riparian habitat assessment factors including, *inter alia,* water

levels and quality and seasonal longevity of water table, water flow, underlying geology, bank and watercourse substrates, suitable submerged refugia and known presence of signal crayfish. Where appropriate, follow-up surveys are undertaken to search for presence of this species by stone turning in the stream bed, netting and searching for burrows in the stream banks. Humane trapping may also be employed.

Harvest Mice: A habitat suitability assessment for harvest mice is undertaken within rough grassland and tall ruderal vegetation. Harvest mice build breeding nests in dense vegetation by weaving a nest out of leaves which will be at the top of a tussock of grass or around half way up the stem of cereals. To search for these nests surveyors walk transects of the target habitat checking within tussocks of grass and on stems. All areas of suitable vegetation are checked.

Notable Flora and Invasive Weeds: A habitat suitability assessment for notable flora (rare and protected) is undertaken and species are recorded. Evidence of the presence of invasive weeds included within Schedule 9 of the Wildlife and Countryside Act 1981 as amended is searched for.