Preliminary Ecological Appraisal

Alton Towers Resort

Nicklins Farm
Staffordshire Moorlands

Final Report

Report no. P95.T131.14
Date of publication: 17th July 2014
(Amended 21st November 2014)

Staffordshire
Ecological Services
The Wolseley Centre
Wolseley Bridge
Stafford
ST17 0WT

Tel: 01889 880124

Project

Preliminary Ecological Appraisal
Nicklins Farm, Alton Towers Resort
Report No: P95.T131.14.

Date: 17th July 2014
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Description:
Preliminary Ecological Appraisal to consider potential impacts to habitats and protected species in relation to development proposal
(Amendment: Inclusion of final proposed site plan Appendix A; Figure A.2 and Proposed Tree Works Plan Appendix A; Figure A.3)

Client Details

Merlin Entertainments Group Plc

Author

Principal Ecologist: Dave Haslam MSc, MCIEEM

Checked by

Principal Ecologist: Dave Haslam MSc, MCIEEM

Disclosure

The information which I have prepared and provided is true, and has been prepared and given in accordance with the guidance of my professional institution's Code of Professional Conduct, and I confirm that the opinions expressed are my true and professional opinions.

Dave Haslam MSc MCIEEM
Principal Ecologist
Staffordshire Ecological Services
Direct dial: 01889 880 124
Switchboard: 01889 880 100
Email: d.haslam@ses-gb.co.uk
Web: www.ses-gb.co.uk

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Non-Technical Summary

- On the 8th July 2014, SES Ltd. conducted a Preliminary Ecological Appraisal (PEA) of the woodland area around Nicklins Farm, Alton Towers Resort, which is proposed for the installation of an aerial rope walk attraction.
- There were no limitations to the habitat survey, but the derelict main building (Nicklins Farm) was judged to be unsafe to enter, therefore the upper floors and roof spaces were not surveyed, the state of the building viewed from the exterior was judged to be sufficient to assess the potential for bats to be present.
- There is a high probability that bats will be roosting within the building on site and in a number of trees along the western boundary (Section 3).
- The potential bat roosts could be impacted upon through disruption to foraging areas if lighting is used along the rope walk or if the building is re-furbished. The level of impact can be determined once activity surveys have been carried out (Section 4).
- Table S1 below provides a brief summary of mitigation onsite subject to the mitigation hierarchy and whether further survey is required before mitigation can be determined. Table S2 provides a summary of net losses/gains with respect to bats & birds (nesting in buildings); for bats, this cannot be determined until further survey is completed.

Table S1: Mitigation Hierarchy

Ecological Receptor	Avoid	Mitigate	Compensate	Further survey needed?	Mitigation measures Summary (**See section 5**)
Designated sites	X			No	Pollution prevention measures Exclusion zone
Badger	X			No	Included in advice on working methods
Bats	*	*	*	*Yes	Presence/absence survey and mitigation under a Natural England licence
Nesting Birds	X			No	Timed clearance Habitat replacement

**Survey insufficient to establish level of impact and mitigation*

Table S2: Net Loss/Gain

Ecological Receptor	Predicted net loss without compensation	Legal Implications?	Designing for net gain/enhancement i.e. net gain
Designated sites	No	No	N/A
Badger	No	Not if avoidance measures implemented	No
Bats	**Unknown**	**Unknown**	**Unknown**

1 Introduction

1.1 Terms of Reference

Staffordshire Ecological Service (SES) Ltd. has been commissioned by Merlin Entertainments Plc (Alton Towers Resort) to undertake a Preliminary Ecological Appraisal (PEA) in support of a planning application for the installation of an aerial rope walk attraction within the woodland block surrounding Nicklins Farm (hereafter referred to as the 'site').

This PEA report presents ecological information from the desk study, Extended Phase 1 Habitat survey, preliminary roost assessment and preliminary protected species surveys on 8th July 2014. The purpose of this report is to provide ecological information to support the planning proposal and thus survey objectives include: identifying ecological features onsite; subjecting them to evaluation and impact assessment; providing advice on the potential for contravention of legislation/policy; and providing recommendations on any further actions needed (licensing, mitigation, enhancement, etc.). A summary of main statutory provisions for biodiversity conservation relevant to this site is provided in Table 1.1 below.

Table 1.1: Main legislation relevant to the site

Biodiversity Legislation	Ecological Feature
Wildlife and Countryside Act 1981 (as amended)	Bats, Nesting Birds, Schedule 1 Birds
Conservation of Habitats and Species Regulations 2010	Bats
Conservation of Habitats and Species (Amendment) Regulations 2012	Wild Birds
Protection of Badgers Act 1992	Badgers

1.2 The Site

Site Name Nicklins Farm
Address: Alton Towers Resort
OS Grid Ref: SK 085 432 **Location Plan (to scale):** see Figure A.1 (Appendix A)
Site Boundary: see Figure B.1 (Appendix B)
Brief Description of Site: The site is dominated by mixed broad leaved with areas dominated by conifers. Surrounding ther buildings is a mosaic of regenerating broad leaved woodland and tall ruderal herbs.
Brief Description of Surroundings:
The surrounding land is part of the Alton Towers Resort and includes car parks, hotel complex, and to the north an area of parkland. The site has habitat connections to the woodland perimeter around the resort.

1.3 Proposed Works

The client intends to undertake the installation of an aerial rope walk attraction with ancillary building. The layout of the rope walk is provided in Appendix A; Figure A.2 with the proposed tree works shown in Appendix A; Figure A.3.

2 Methodology

2.1 Surveyor Information

Table 2.1: Surveyor information

Ecologist	Position	Relevant Experience (in yrs)
Dave Haslam MSc MCIEEM	Principle Ecologist	30

2.2 Survey Methods & Design Criteria

The focus of the surveys was habitats, bats, badgers and breeding birds although evidence of other protected species and their habitats would also be noted, if applicable. A summary of the survey methodology is provided in Table 2.2 below. The following criteria were used to determine the type and extent of the surveys carried out:

- Habitats present both on and immediately around the site,
- Semi-natural habitat connectivity between the site and the wider area (e.g. hedgerows, water courses, shelter belts etc.)
- The proximity and nature of local protected / notable species records and designated sites compiled in the pre-survey desk study
- The nature and extent of works.

2.2.1 Preliminary Ecological Appraisal

Table 2.2: PEA Survey Methodology

Survey details	Appropriateness of Methods	Geographical extent
10/7/14 Desk Study	In accordance with Guidelines for Preliminary Ecological Appraisal (CIEEM, 2012)	1km radius search for protected & BAP species and designated sites
	Methods: Queried Staffordshire Ecological Record (SER)	
8/7/14 PEA - Extended Phase 1 Habitat Survey	Timing: **Suitable** (April to Sept) In accordance with established guidance [(CIEEM, 2012),(JNCC, 1990), (BSI, 2013)]	Site (as defined by red boundary in Figure B1) and adjacent habitats, where accessible
	Methods: Habitat types mapped & described, including representative species, invasive species and a record of habitat condition, where appropriate. Includes searches for field signs of, and/or habitat suitability for, protected and/or notable species.	
Preliminary Roost Assessment (PRA) – Bats	Timing: **Suitable** (Anytime)In accordance with established guidance [(BCT, 2012),(Mitchell-Jones et al, 2004)]	Buildings, trees or other structures onsite; habitat assessment of site & surrounding habitat
	Methods: External daytime inspection of any structures for bat sign, and tree assessment, where applicable	
PEA – Badgers	Timing: **Suitable** (Feb-Dec) Timing: **Optimal** (Feb-April & Oct-Nov) In accordance with established guidance (Harris S. et al, 1989)	Site & land within 30m radius of site

	Methods: Visual inspection for field sign	
PEA – Breeding birds	Timing (Habitat): **Suitable** (Anytime)/ Timing (Field sign): **Optimal** (Mar-Aug)	Site & adjacent habitats
	Methods: Habitat suitability assessment and/or casual check for nests	
Average weather conditions (PEA): 2/8 cloud cover, 20^0C, No wind, No Rain. **PEA Standard Survey Equipment:** Binoculars, torch, compass, field guide(s), lens, maps & plans, notepad		

NB: Suitable and optimal survey timings are based on Templates for Biodiversity and Geological Conservation Validation Checklists, Pilot draft, (ALGE, 2007)

2.3 Survey Limitations

The survey methodologies used were deemed to be the most effective possible for this site at this time of year. Limitations to the surveys are provided in Tables 2.4 below.

Table 2.4: PRA limitations

Limitation	Overcoming limitations
Lack of safe access to, and close inspection of, upper elevations of multi-storey buildings, which included crevices and cavities, roof spaces.	Use of binoculars
Bats may not be detectable at time of survey.	Nocturnal surveys advised

2.4 Evaluation Criteria

In accordance with *Guidelines for Ecological Impact Assessment in the United Kingdom* (IEEM, 2006), the following geographical frame of reference is used when ascribing a value or potential value to an ecological resource:

- **International importance –** e.g. Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites
- **National importance –** e.g. Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR)
- **Regional importance –** e.g. Environment Agency regional biodiversity indicators, important features in Natural England Natural Areas
- **County importance –** e.g. Local Nature Reserves (LNR), Site of Biological Interest (SBI), Site of Importance for Nature Conservation (SINC)
- **Local or parish importance –** e.g. Biodiversity Alert Site (BAS), Site of Local Importance for Nature Conservation (SLINC), ecological features or resources such as hedge rows, woodlands, ponds
- **Within the zone of influence -** e.g. Locally or regionally common habitats that provide ecological resources within the site and / or immediately surrounding area e.g. scrub, tall herbaceous vegetation
- **Secondary value –** e.g. Features that are of little ecological interest in themselves but perform an ecological function such as areas of scrub that

that may buffer more sensitive habitats from the effects of development or intensive farming.

- **Negligible importance –** e.g. urban areas, hard standing, intensely farmed agricultural fields.

2.5 Impact Assessment Criteria

Negative and positive impacts on nature conservation features have been characterised based on predicted changes as a result of the proposed activities. In order to characterise the impacts on each feature, the following parameters are taken account of where appropriate:

- The magnitude of the impact
- The spatial extent over which the impact would occur
- The temporal duration of the impact
- Whether the impact is reversible and over what timeframe
- The timing and frequency of the impact.

3 Results

3.1 Desk Study Results

3.1.1 Protected & NERC Species Records

Staffordshire Ecological Record was queried for records of protected species, invasive species and species identified as being of principal importance under Section 41 of the NERC Act 2006 located within 1km of the site boundary.

Only records relevant to the site and the proposed works are discussed in the sections below. A summary of relevant records are listed in Table C.1 in Appendix C. A complete list of records returned is available on request.

3.1.2 Invasive Species Records

The records are for mink, bird species and Himalayan balsam records. The majority of the records relate to the wetland areas to the north and south of the site, with the Himalayan balsam records for the Alton Towrs resort as a whole.

3.1.3 Designated Sites

A designated sites plan is provided in Figure C.1 in Appendix C.

There are no statutory designated nature conservation sites within 1km of the site. There are six non-statutory locally-designated nature conservation sites within 1km of the site. There are no designated sites for bat interest within 30km.

Table 3.1: Designated Sites within 1 km

Site Name	Desig-nation	Distance from Site (in metres)	Info
Alton Park	SBI	110m N	A lowland wood pasture with a number of veteran trees in the southern field. In the north-east is an abundance of scattered oak and sweet chestnut over poor semi-improved grassland on a north facing slope.
Abbey Wood	SBI	310m SW	A large expanse of woodland surrounding Alton Towers. There are sycamore plantations, but the main core of woodland being semi-natural showing a good age structure of trees with frequent mature beech, yew and maturing oak.
Castle Wood	SBI	840m SW	An area of mature birch/oak woodland on a steep north-facing slope, there are exposed sandstone rock faces across the slope, known as Alton Cliffs.
Crump Wood	SBI	620m S	An area of mature birch/oak woodland on a steep north-

			facing slope, there are exposed sandstone rock faces across the slope.
Crumpwood Fields, Caldon Canal and Park Banks Meadow	SBI	390m SE	An area of somewhat rank, dampish grassland with a ditch running east-west across the field. Despite its rather rank nature, the field appears unimproved and retains such species as Betonica officinalis and Dactylorhiza fuchsii.
Hazlehurst Brook	BAS	830m N	A narrow stream valley which becomes progressively more steeply-incised towards the eastern end where there are a series of linked pools fed by the stream. A tributary joins towards the centre of the site, where there is a waterfall.

3.2 Extended Phase 1 Habitat Survey Results

The Extended Phase 1 Habitat Survey Plan is provided in Figure B.1 in Appendix B. Photographs of the site and its habitats are provided in Appendix D.

Phase 1 habitats onsite are described in Table 3.2 below.

Table 3.2: Phase 1 habitat descriptions

Phase 1 Habitats
Woodland (various types see Figure B1)
The site is dominated by conifer, mixed and broad leaved woodland composed of a variety of species including beech, silver birch, pedunculate oak, sycamore, whitebeam, rowan, sweet chestnut, horse chestnut, lodgepole pine, scot's pine and holly. The shrub layer is sparse with elder, hawthorn and a small area of snowberry along the southern boundary. The ground flora is dominated by bramble with broad buckler fern, rosebay willowherb, wood avens and foxglove.
Tall Herb
The southern part of the site has a central area of tall ruderal herbs dominated by rosebay willowherb with creeping thistle, nettle, bramble, cock's-foot, false oat-grass and ivy.
Amenity Grassland
The western boundary and the surfaced central path are bordered by frequently mown grassland dominated by perennial rye grass with daisy, dandelion, smooth meadow grass and red fescue. .
Boundaries
The southern part of the site is bordered by a dry stone wall with the northern part of the site bordered with chectnut paling fencing.

3.3 Protected Species Scoping Survey Results

The potential for bat presence is discussed in the Preliminary Roost Assessment in Section 3.4 below.

There were no large mammal paths or evidence of badger onsite.

3.3.1 Nesting Birds

During the survey, 4 tree creepers were noted amongst the mixed broad leaved woodland, whilst old nests were found within the outbuilding. The structure and density of the vegetation makes the area suitable for nesting birds of the commoner species which include robin, wren, blackbird, mistle thrush, blue and great tit and wood pigeon, all of which were recorded during the site visit.

3.4 **Preliminary Roost Assessment**

3.4.1 Bat Habitat Description

The main building (Nicklins Farm) is suitable to support roosting bats whilst the surrounding habitat of woodland is suitable for foraging. The site connects at its northern edge with woodland, parkland and grassland which are used by foraging and commuting bats. The parkland to the north was surveyed for bats in 2012 and species recorded include noctule, common and soprano pipistrelle and brown long-eared.

There are several mature trees along the western boundary (Figure B1 Target Notes T1-T3) that contains features that have potential to support roosting bats (see Table 3.4 below).

3.4.2 Preliminary Roost Survey

Potential roosting habitat affected by this application is confined to the target building and a few trees. Findings from the PRA of buildings are illustrated in Plates 3.1and 3.2 with descriptions and target notes in Table 3.3. Results of the tree assessment are given in Figure 3.4 below and noted on the Phase 1 plan in Appendix B. Photographs of the building(s) and trees are provided in Appendix C.

Plate 3.1: Nicklins Farm

Table 3.3: Results of PRA

Preliminary Roost Assessment - Buildings
Nicklin Farm (Main Building): See Plate 3.1 above
Size: Approximately 16m x 6.5m with side extension 6.5m x 3.3m **Description:** The farm is a two storey stone faced building with tiled roof. The building is in a derelict state with cracks to the outer walls and roof tiles missing. The interior could not be thoroughly inspected due to the dangerous nature of the structure.
Potential Access Points: (include target notes, if applicable) The stone walls contain numerous large cracks, the roof has many gaps with broken and missing slates, there are gaps around windows and doors.
Potential Bat Roost Features: (include target notes, if applicable) The crevices within the walls with the gaps within the roof and the ivy covered wall and side extension all provide potential roosting areas.
Evidence of bats found: No conclusive evidence found due to unsafe structure, in particular the upper floor.
Evidence of birds found: None
Potential for roosting bats**: High**
Outbuilding: See Plate 3.2 below
Size: Approximately 12m x 5m **Description:** This is an open fronted and sided outbuilding used for storage of equipment and in the past possible game bird rearing. The roof is corrugated tin with potential asbestos sheeting. The interior is open and light with no lining to the roof. .
Potential Access Points: (include target notes, if applicable) The openness of the building provides many access points.
Potential Bat Roost Features: (include target notes, if applicable) There are very few features to support roosting bats, there are small gaps behind the exterior and roof sheeting.
Evidence of bats found: None
Evidence of birds found: Old bird nests along beams.
Potential for roosting bats: Negligible to low

Plate3.2: Outbuilding

Table 3.4: Results of Tree Roost Assessment

Tree No.	Spp.	Description	Bat Features	Tree Category
T1	Sycamore	Standard Tree: tag number 1034	Rot hole in main trunk	1
T2	Sycamore	Standard Tree: tag number 1035	Rot holes and fissures in the main trunk	1*
T3	Group of trees: Horse Chestnut, Pine,Sycamore,	Mature specimens.	Rot holes, fissures and dense ivy cladding	1*-1
Trees Category Definitions (BCT, 2012)				
Category 1*	Trees with multiple, highly suitable features capable of supporting larger roosts			
Category 1	Trees with definite bat potential, supporting fewer suitable features than Category 1* or with potential for use by single bats			
Category 2	Trees with limited or no obvious potential to support bats, although the tree is of a size and age that elevated surveys may find suitable cracks/crevices			
Category 3	Trees with no potential to support bats			

Plate 3.3: Tree T1and T2

Plate 3.4: Tree Group T3

4 Evaluation and Impacts

The following section provides an indication of the ecological value of features present, outlines nature conservation legislation relevant to the features and assesses the level of impact from the proposal on the features. The valuation is based on the Guidelines for Ecological Impact Assessment (IEEM, 2006) – see sections 2.4 and 2.5. Impacts relate to both construction and operational phases of the development unless stated otherwise.

Table 4.1: Evaluation and Impacts

Ecological Feature	Relevant legislation	Evaluation	Mitigation Hierarchy	Impact Level
SBI's and BAS	HR	County	Avoid	Null
	Impacts: Construction: Over 250m distant; none expected as long as pollution control measures in place (Section 5.0) Operational: None expected			
Onsite Habitats (excluding buildings)	N/A	Secondary	A, M,C	Low
	Impacts: Construction: Some removal of dead, damaged, diseased trees. Operational: None expected			
Nicklin Farm (with respect to bat roosts)	HR, WCA	Undetermined	Undetermined	Undetermined
	Impacts: Construction: **Undetermined** Operational: **Undetermined**			
Outbuilding (with respect to bat roosts)	HR, WCA	Negligible	M	Low
	Impacts: Construction: None predicted as long as Reasonable Avoidance Measures (RAM) are followed (Section 5.0) Operational: None expected			
Badgers	BA	National	A	Neg
	Impacts: None (all phases) as long as precautionary approach is taken (Section 5).			
Bats (foraging & commuting)	HR, WCA	International	A	Low
	Impacts: Construction: None as long as work lighting is not used between dusk and dawn and hedgerows are retained (Section 5.0) Operational: None as long as sensitive lighting scheme implemented and hedgerows (Section 5.0)			
Nesting Birds	WCA	National	A	Low
	Impacts: Construction: Risk of injury/damage to birds, nests, etc. Avoid through timing of works or mitigate as specified (Section 5.0) Operational: Loss of breeding habitat			

Key to Legislation & Mitigation Hierarchy (& links to legislation)
HR – Conservation of Habitats & Species Regulations 2010
http://www.legislation.gov.uk/uksi/2010/490/contents/made
WCA – Wildlife & Countryside Act 1981 (as amended)
http://www.legislation.gov.uk/ukpga/1981/69
BA - Protection of Badgers Act 1992
http://www.legislation.gov.uk/ukpga/1992/51/contents
NERC - Natural Environment and Rural Communities Act 2006 (NERC)
http://www.legislation.gov.uk/ukpga/2006/16/section/40

A – Avoid, M – Mitigate, C - Compensate

5 Recommendations & Mitigation

It should be noted that all recommendations are provided as information only and specialist legal advice may be required. The conclusions of this report are based on current information. Reassessment is likely to be required if:

- **Works are delayed for more than one year**
- **Proposal plans are amended subsequent to the publication of this report. SES Ltd. MUST be contacted if changes are made.**

Table 5.1: Further Survey & Licensing

Further Survey and Licensing
Further Survey Required?
Yes
Bat Presence/Absence Survey – minimum 2-3 emergence and/or dawn surveys of Nicklins Farm (to meet BCT standard; weather-dependent) between May and August/September to establish the presence/absence of bat roost(s). Must ensure adequate site coverage (minimum 6 surveyors) and suitable weather. To include Roost Characterisation if roost found.
Licence required?
Undetermined
If further survey indicates that the proposal is likely to commit an offences (or offences) with respect to EPS (bats, etc.) or their habitat, a licence will be required. (Please read Appendix F for important information on the licensing process).

Table 5.2: Mitigation Hierarchy: Further Actions

Avoidance (A), Mitigation (M), Compensation (C) & Enhancement	
General	
All staff and workers on site, including sub-contractors, should be made aware of species and habitat protection issues at site induction talks**. Work must stop immediately and Natural England contacted if any protected species are found onsite.** (Tel: 0300 0845 601 4523). Staffordshire Ecological Services (SES) can also be contacted at 01889 880125. If a bat is found and SES are not available, please phone the Batline on 0845 1300 228.	
Habitats/Sites	
Trees (with respect to roosts) (A,)	Known/confirmed roost - Tree can only be felled under EPS licence following installation of equivalent replacement habitat. Nocturnal surveys required. Categories 1* and 1- Nocturnal surveys required if to be felled; avoid disturbance where possible (SES can advise further) Category 2 – Avoid disturbance to trees where possible; may be felled taking reasonable avoidance measures. Category 3 – No mitigation required.
SBI, BAS (A)	All proposed work must strictly be in accordance with all relevant Pollution Prevention Guidelines (PPG) published by the Environment Agency which may include but is not limited to PPG1 (general), PPG5 (works in, near, or liable to affect watercourses) and PPG6 (work at construction & demolition sites). Contingency plans should be drawn up to address chemical spillage, collision, etc.

Protected & NERC Species	
Bats	Mitigation applicable to works to Nicklins Farm cannot be determined until further survey completed (See Table 5.1)
Bats (A, M, C)	Implementation of Reasonable Avoidance Measures (RAM) (see below) are advised to reduce the chance of committing an offence with respect to bats. **Reasonable Avoidance Measures** to be implemented include: – Ensuring all workers are familiar with bat (and protected species) legislation at site induction and agree to work in accordance with and fully follow these best practice measures. – Careful check of any cracks/crevices/cavities in the building prior to demolition. Typical signs of usage by bats are droppings, urine stains, colouration of access points by grease from their fur, slight polishing of brick / stone / wood work around entrance and lack of cobwebs when other adjacent holes have plenty. – Individual bats may be present under cladding, between timber boards, between corrugated sheeting and sometimes just clinging to timber beams around joins as well as others areas. When any of these are removed, please do so carefully, lifting outwardly, and checking for bats continually. • In the unlikely event that a bat is found, please adhere to the following: – At no point should the worker handle bats. Untrained handling may cause the bat unnecessary stress and injury and, if bitten, may expose the worker to rabies-related European Bat Lyssavirus. – Where possible replace the covering without damaging the bat before contacting SES Ltd for advice. Any grounded bats should be covered with a cardboard box and left alone until a licensed bat worker arrives to assess the situation. – If the bat attempts to fly at any point allow it to do so. Preventing it will cause unnecessary stress and may cause injury to the bat. Halt works and report the escaped bat to SES Ltd.
Bats (M)	When planning the locations and directions for **lighting**, avoid an increase in lighting levels or focusing lighting toward potential bat roosts, hedgerows tree-lines and other possible foraging lines such as walls, fences and other linear features. This can be achieved through use of cowls, hoods, etc. to direct the light, avoiding tall lighting columns, using motion-sensor security lighting, and timing the lighting to avoid the 1hr after dusk and 1hr before dawn when bats are most active

Badger (A)	Any badger activity (fresh excavation of setts, dung pits etc.) close to working areas should be immediately reported to consultants or the local badger group and their advice implemented. Any trenches or other excavations left open for more than 12 hours should be provided with an escape ramp (simply a plank of wood with no step at the base, reaching up to ground level or slightly above) for any wildlife to be able to escape.
Nesting Birds (A)	Demolition/site clearance of areas that could be potentially used as nesting sites should be timed to avoid impact on nesting birds. The nesting season generally runs from March to August, but is species-dependent. Autumn through to very early spring clearance is a well-established means of preventing this impact. If this is not possible, further advice from an ecologist should be sought.
Various (A)	Avoid burning or machine removal of any potential hibernacula (compost piles, wood piles, etc.) without a thorough hand search for herpetofauna.
Enhancement	
Bats	Bat Boxes within the woodland area, enhancements to Nicklins Farm is undetermined until activity surveys have been carried out.
Birds	Install Nest Boxes around Nicklins farm

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Appendix A: Site Plans

Figure A1: Site Location

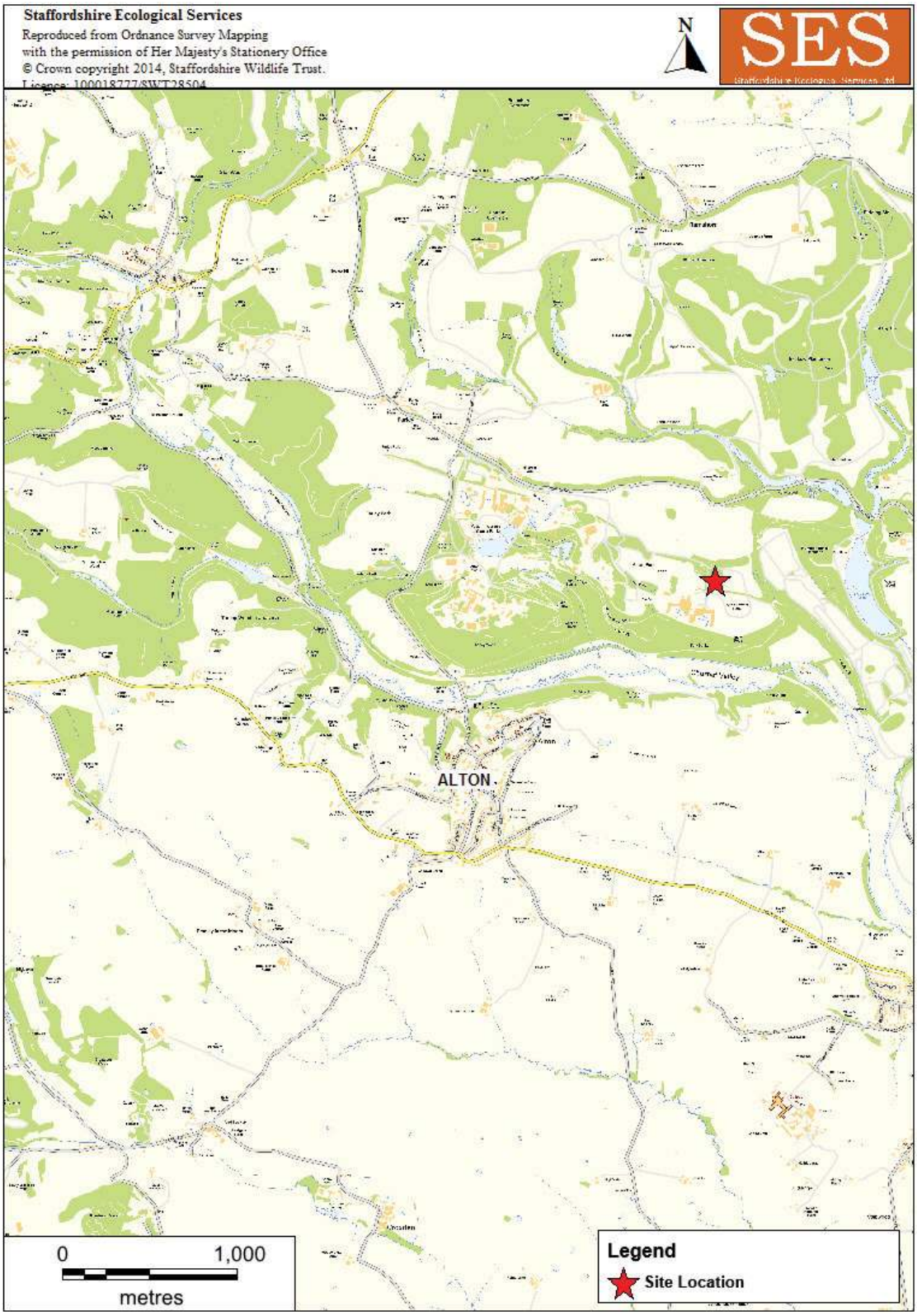
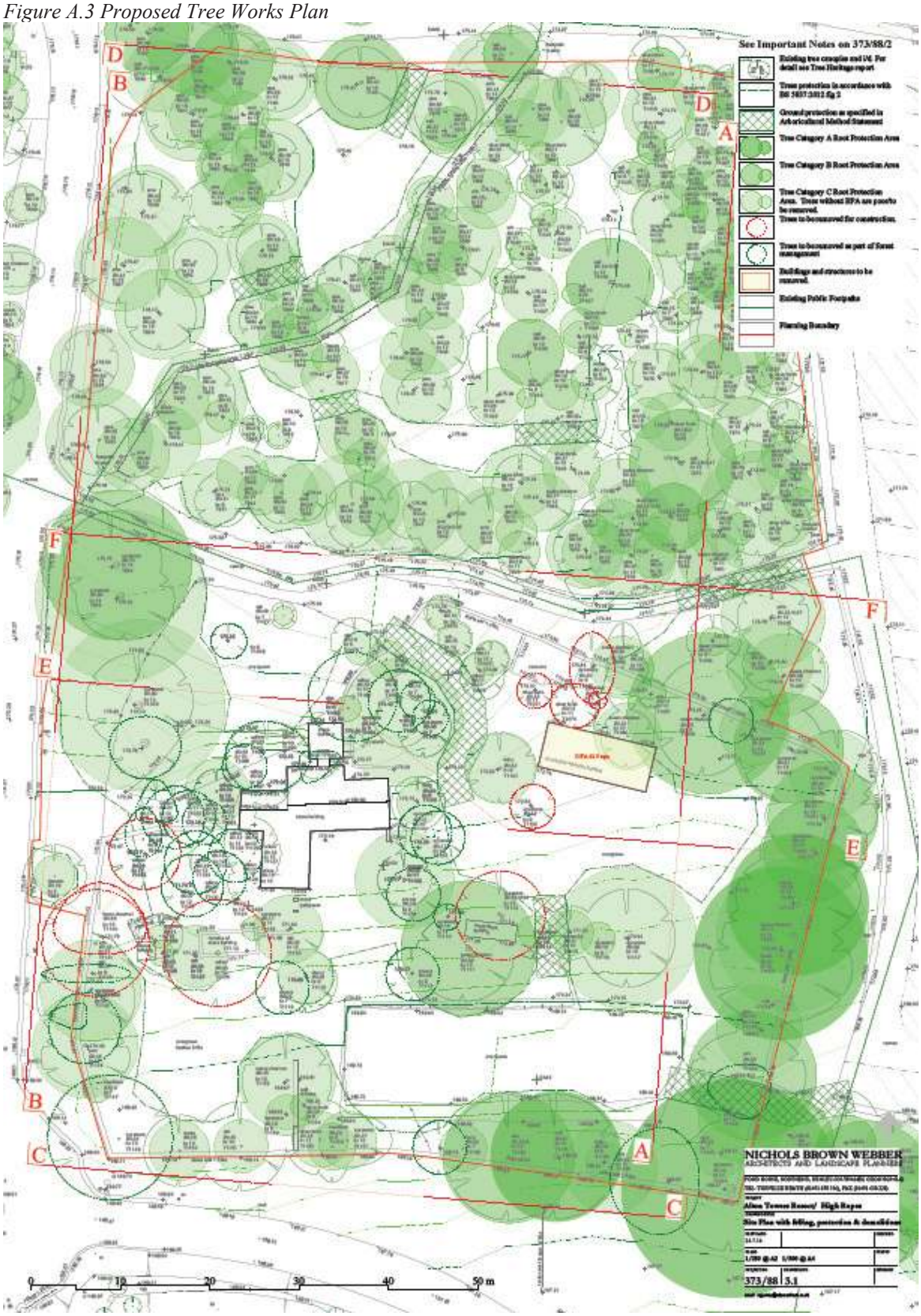


Figure A.2 Proposed Rope Walk Route

Figure A.3 Proposed Tree Works Plan



Appendix B: Survey Plans, Target Notes & Tables

Figure B.1: Extended Phase 1 Habitat Survey Plan

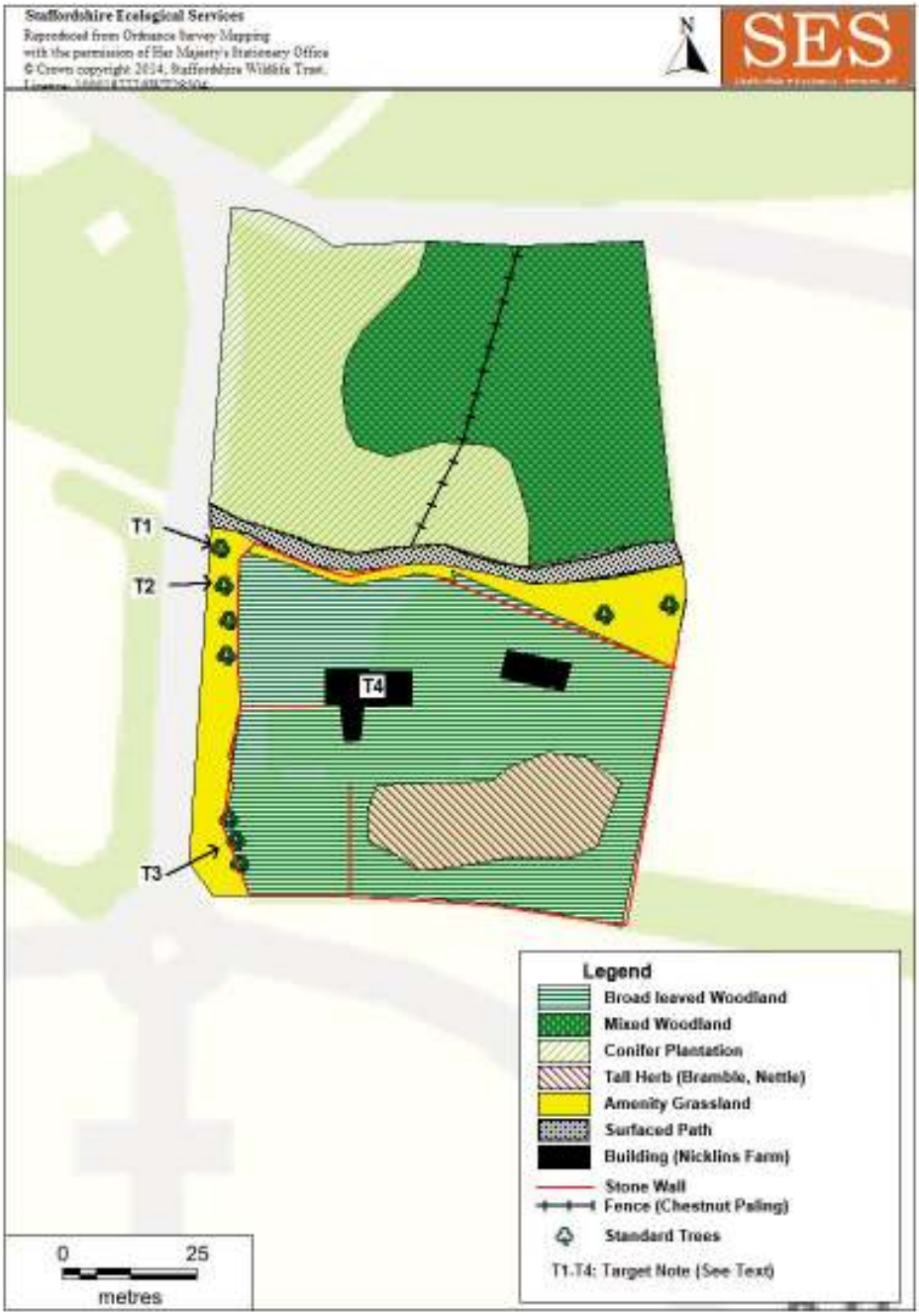


Table B1 Target notes

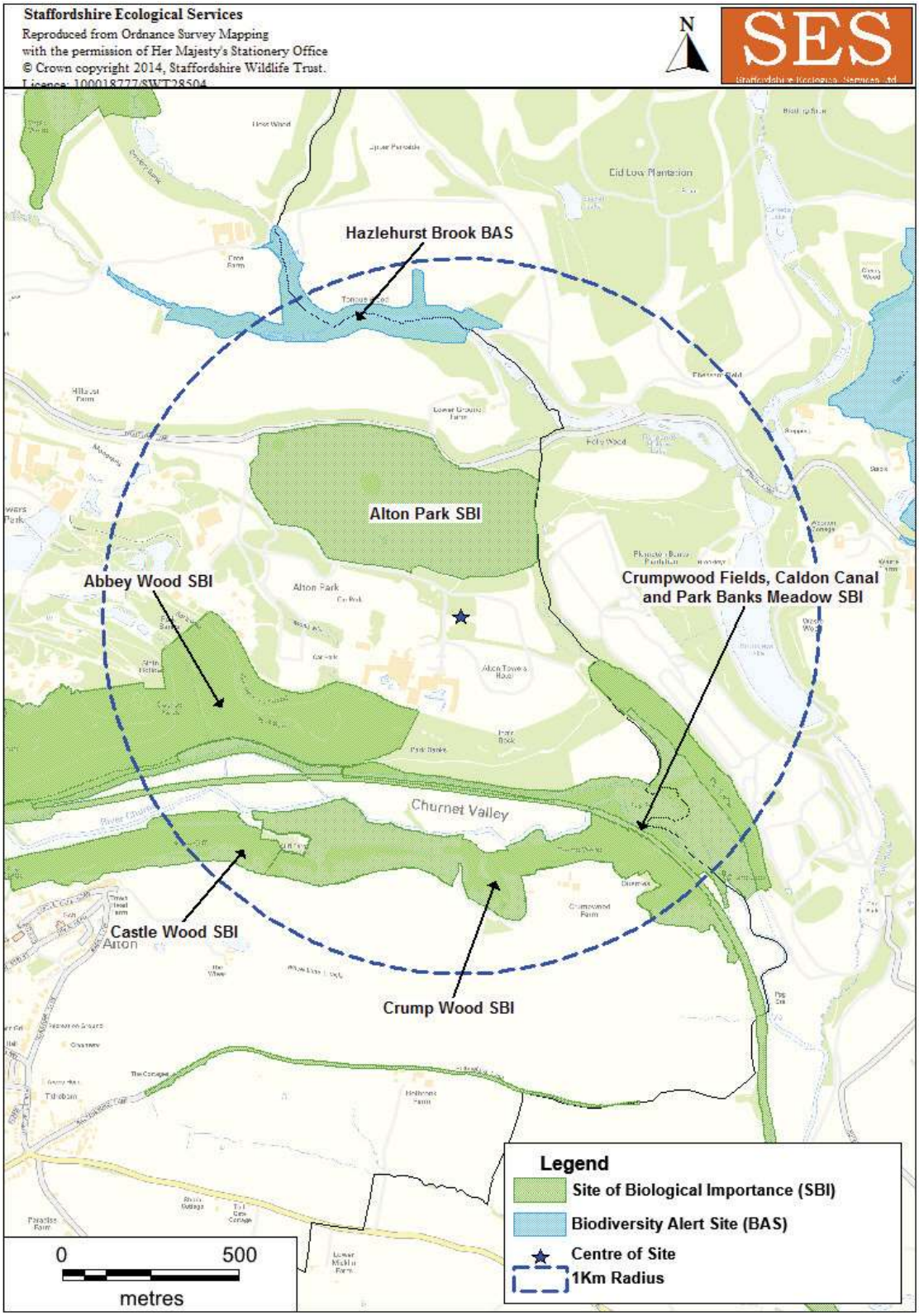
Target note no.	Comments
1	Standard Sycamore, moderate potential for roosting bats
2	Standard Sycamore, high potential for roosting bats
3	Group of trees, high potential for roosting bats
4	Nicklins Farm main building, high potential for roosting bats.

Appendix C: Results of Desk Study

Table C.1: Protected Species Records within 1km of site

Protected Species					
Informal Group	Common Name	Scientific name	No of Records	First	Last
bird	Barn Owl	Tyto alba	13	1997	2013
bird	Brambling	Fringilla montifringilla	3	2004	2012
bird	Common Crossbill	Loxia curvirostra	5	2002	2010
bird	Common Goldeneye	Bucephala clangula	11	1998	2011
bird	Common Kingfisher	Alcedo atthis	40	1997	2013
bird	Eurasian Hobby	Falco subbuteo	8	2003	2013
bird	Ferruginous Duck	Aythya nyroca	10	2005	2010
bird	Fieldfare	Turdus pilaris	10	2005	2013
bird	Great Northern Diver	Gavia immer	1	2002	2002
bird	Greater Scaup	Aythya marila	27	2000	2013
bird	Greylag Goose	Anser anser	38	2003	2013
bird	Merlin	Falco columbarius	2	2003	2003
bird	Northern Goshawk	Accipiter gentilis	5	2000	2005
bird	Northern Pintail	Anas acuta	10	2004	2007
bird	Peregrine Falcon	Falco peregrinus	7	2000	2010
bird	Red Kite	Milvus milvus	3	2009	2010
bird	Redwing	Turdus iliacus	19	2000	2013
bird	Ruddy Shelduck	Tadorna ferruginea	1	2006	2006
bird	Whooper Swan	Cygnus cygnus	3	2008	2013
flowering plant	Bluebell	Hyacinthoides non-scripta	11	1997	2009
mammal	Eurasian Badger	Meles meles	11	1983	2011
mammal	European Otter	Lutra lutra	3	2002	2008
mammal	European Water Vole	Arvicola amphibius	3	1982	1982
mammal	Pine Marten	Martes martes	1	1997	1997
mammal	Polecat	Mustela putorius	1	2000	2000
mammal - bat	Brown Long-eared Bat	Plecotus auritus	3	1996	2008
mammal - bat	Daubenton's Bat	Myotis daubentonii	1	2002	2002
mammal - bat	Myotis Bat species	Myotis	1	2008	2008
mammal - bat	Natterer's Bat	Myotis nattereri	1	2008	2008
mammal - bat	Pipistrelle	Pipistrellus pipistrellus s.l.	4	1982	2002
mammal - bat	Soprano Pipistrelle	Pipistrellus pygmaeus	1	2008	2008
reptile	Grass Snake	Natrix natrix	15	1926	2001
reptile	Slow-worm	Anguis fragilis	1	1980	1980

Figure C.1: Designated Sites Plan



Appendix D: Photographs

Plate D.1 Mixed Broad leaved Woodland

Plate D.2 Conifer Plantation

Plate D.3 Regenerating Woodland Around Nicklins Farm

Plate D.4 Tall Ruderal herb Area

Appendix E: Bat Box Designs for Site Enhancements:

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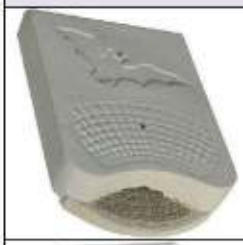
Below is a list of bat related products that may be used for bat enhancement. However, please be aware that BCT does not endorse any particular product or brand as very little evidence is available to demonstrate that they are successful.

Bat Boxes	In situ	Description	Company	Estimated price
For external surfaces of buildings:				
		**Schwegler 1 WQ Summer & Winter Roost** Dimensions: 580 H x 380 W x 120 D Weight: 22Kgs	Alana Ecology Jacobi Jayne The Code Store	£90 to £139
		**Schwegler 1 FQ Bat Roost** Dimensions: 600H x 350W x 90D mm Weight: 15.8 Kgs	Alana Ecology Jacobi Jayne NHBS The Code Store	£70 to £90
	Internal or external 	**1 Schwegler FE Bat Access Panel** with optional back plate External Dimensions: H 30 x W 30 x D 8 cm Weight: 7.8 kg	Alana Ecology Jacobi Jayne NHBS The Code Store	£38 to £49
To integrate into walls:				
	Can be built with timber, brick or stone facing to match walls. *BCT is using the Habibat as a research and monitoring tool.	**Habibat** Dimensions: 215 x 215 mm Or 215 x 290 mm	Habibat NHBS	£82.50 to £129

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		**Schwegler 1FR Bat Tube** Dimensions: H 475 x W 200 x D 125 mm Entrance W 150 x D 20mm Weight: 9.5kg	Alana Ecology Jacobi Jayne NHBS	£72 to £75
		**Schwegler 2FR Bat Tube** The 2FR bat box is based on the same design as the 1FR, but with the addition of holes in the sides. This allows multiple tubes to be placed next to each other to form a much larger bat roost.	Alana Ecology Jacobi Jayne NHBS	£72 to £76
		**Ibstock enclosed bat box**	Ibstock	
For trees:				
	Trees or flat surfaces	**Schwegler 1FF Bat Box** Dimensions: 430H x 270W x 140D mm. Entrance hole: 120 x 240mm	Alana Ecology Jacobi Jayne NHBS	£56 to £60
	Trees	**Schwegler 2F Bat Box** (General Purpose) Woodcrete 33cm H x diameter 16cm Note: location of access hole means that box is not self-cleaning.	Alana Ecology NHBS	£27.95

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	Trees	**Schwegler 2FN Bat Box** The 2FN Bat Box has two entrances - one at the front and one at the rear against the tree. It has a domed roof to form clusters and an increased internal height. 36cm H x diameter 16cm 4.3kg	NHBS Nature Counters	£34.95
	Trees	**Schwegler 1FD Bat Box** The 1FD is a large general purpose bat box. Effectively it is a larger version of the Schwegler 2F bat box, with the addition of two roughened wood panels inside the box which simulate crevices. Note: location of access hole means that box is not self-cleaning.	Alana Ecology NHBS	£49 to £55
Wooden bat boxes				
	Fitted to walls, other flat surfaces or trees	**Kent Bat Box** Materials to be made from untreated rough-sawn timbers. Timber should be 20mm thick. The box should be rainproof and draught-free. Crevices can be between 15 & 25mm wide	Self constructed. Instructions from BCT.	

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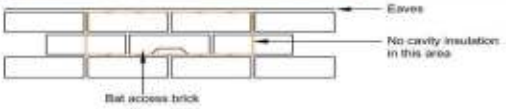
Access tiles or bricks	In situ	Description	Company	Estimated price
		**Tudor Bat access tile set**	**Tudor Clay Roof Tiles**	
		Ventilation tiles that can be adapted for bat access	Aspect Roofing	
		**Bat access brick**	Tamworth Property Services t) 01827 310475 chris@bat-survey.co.uk	
		**Ibstock bat roost entrance arch brick**	**Ibstock**	
		**Bat access slate**	JD Products **Owens Slate Service** Summit Slate	**£40-80**
		**Habibat Roof Access Tile**	Dreadnought Tiles Habibat	

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Positioning considerations:

Aspect

Temperature is known to be the major factor influencing successful uptake of artificial roost by bats. In general, bats seek warm spaces to help them with rearing young. For this reason, bat boxes should be located where they will receive the maximum amount of sunlight. In the northern hemisphere this will be the southerly aspects/orientation (south, south-west and south-east). However, it is helpful to install bat boxes in more than one aspect to allow a choice of roosting conditions. Bat boxes located on a shady side will remain cooler and will be more suitable for use during the hibernation period (winter) or by male bats all year round.

Height

Position the bat boxes a minimum of 2 meters above ground. Avoid placement above windows, doors and wall climbing plants, thereby reducing the likelihood of predation by cats. A position near the eaves or gable apex of the property would be preferable.

Other considerations

To make the bat box a potential roost for a wider range of bat species, it is helpful to consider whether there is nearby linear vegetation features such as hedges. This is because some bat species use these features for navigation between their roosting site and feeding ground and to avoid flying in open and exposed areas.

Resources:

- Williams, C. 2010. *Biodiversity for low and zero carbon buildings: a technical guide for new build.* RIBA Publishing, UK
- Bat Conservation Trust, 2010. *Bats in Buildings*. Bats and the Built Environment Series: Volume 1. http://www.bats.org.uk/publications_download.php/247/Bats_and_Buildings_finalDec2010.pdf
- BCT webpages: http://www.bats.org.uk/pages/bats_and_buildings.html

Version 5: updated June 2012

Appendix F: The EPS Bat Licensing Process

The following is a **summary only** of information on the Natural England EPS bat development licensing process: the legislation, the licensing, timing constraints, etc. Please refer to the following link for full, detailed guidance.
http://www.naturalengland.org.uk/ourwork/regulation/wildlife/licences/applicationforms.aspx#2

a) Legislation

The basic protection afforded to bats is listed below:
It is illegal to:

- intentionally or deliberately kill, injure or capture (or take) bats;
- deliberately disturb bats (whether in a roost or not);
- recklessly disturb roosting bats or obstruct access to their roosts;
- damage or destroy bat roosts (regardless of intent);
- possess or transport a bat or any part of a bat, unless acquired legally;
- sell (or offer for sale) or exchange bats, or parts of bats.

The word 'roost' is not used in the legislation, but is used here for simplicity. The actual wording in law is 'any structure or place which any wild animal...uses for shelter or protection' or 'breeding site or resting place'. Because bats tend to re-use the same roosts after periods of vacancy, legal opinion is that the roost is protected whether or not the bats are present at the time.

Penalties on conviction of a bat-related crime - the maximum fine is £5,000 per incident or per bat, up to six months in prison, and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery.

b) Licensing

- **Legalities**

  The development licence would permit an otherwise unlawful activity to take place, and it requires of the licencee measures to ensure that negative impacts are prevented, reduced or offset, and that the favourable conservation status of the bats is maintained. **Once a licence is granted, it is a Criminal Offence with fines of a maximum of £5,000 per infringement for a person to contravene or fail to comply with license conditions, including its appended Annex. This includes ALL persons authorised to act under this licence.** A licensed bat ecologist must be appointed to assist in the preparation and the delivery of the mitigation proposals that ensure the species protection requirements (Favourable Conservation Status 'FCS' test) can be met.
- **The Three Tests**

  As the development site contains an EPS (European Protected Species), legislation requires that the proposal will need to pass '**three tests'** in order to be considered:

  1) A licence can be granted for the purposes of "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".

2) The appropriate authority (in this case Natural England) shall not grant a licence unless they are satisfied "that there is no satisfactory alternative".

3) The appropriate authority shall not grant a licence unless they are satisfied "that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range."

Additional information on the tests is available from the Natural England website.

http://www.naturalengland.org.uk/ourwork/regulation/wildlife/licences/applicationforms.aspx#2

The ecologist is responsible for providing evidence to meet Test 3 in the **Method Statement** and other associated documents. The evidence to satisfy tests 1 and 2 is submitted on a part of the license application called the **Reasoned Statement**. The Reasoned Statement must be filled in by the client or their agent. Applicants often approach planning consultants, architects or similar for advice regarding completion of the Reasoned Statement.

- **Application Documents**

  Documents that make up the application pack include the Application Form, Method Statement, Reasoned Statement and the Work Schedule, which includes the Post-development Work Schedule. Supplemental evidence to support the Reasoned Statement will be required, and if it's a phased development, then additional documents will be necessary also. Recent changes have been made to these templates, which may cause minor delays to application pack completion as ecologists/agents adjust to the amendments.

- **Permissions**

  The development must have **full permission** before the licence application will be registered including any ecology-related conditions or reserved matters that can be discharged before the date of application.

- **Further bat surveys**

  If a full active bat season is going to pass between the granting of planning permission and the licence application period, Natural England will require **update survey(s)** (March-Aug) prior to application submission. The number of surveys required will vary by site depending on the size and complexity of the site as well as the species and roost types present.

- **Land ownership**

  If mitigation, compensation or monitoring is anticipated to be on land not owned by the applicant, then written consent from the landowner will be required by Natural England. Responsibility for management and maintenance must also be agreed.

- **Commitments**

  Applications should not give any commitments to undertake licensed works (or actions relating to the licence) that cannot be delivered.

- **Multi-phased projects**

If a plan is phased, Natural England will require a detailed Master Plan, which includes maps, a phasing programme, explanatory text, habitat maintenance and management plant, etc.

c) Licence timescales:

- **Licensing decision**

  The licence application pack can take anywhere from **2 to 3 weeks** to produce and Natural England allow themselves **30 working days** from the date of receipt to respond to applications, a window which can be extended if further information is requested by themselves. It is important that clients, developers, contractors, agents, etc. keep this in mind when designing work timetables. Occasionally, further information will be requested by NE, which can result in additional delays; therefore application as soon as possible is advised.

- **Timing of works**

  In most cases, the works most likely to affect bats (bat exclusion work, soft strip, re-roofing, ecologist-advised timber treatment, etc.) will normally be timed to avoid the hibernation and maternity periods. Thus, these works tend to be timed for either the **September-October period** or the **March-April period**. This means licence application is normally completed 3 months prior to these periods, and cannot be submitted any earlier.

- **Other Timing**

  All timescales are weather-dependent (e.g. 5 days post-exclusion period extended due to inclement weather) and also may be impacted by other aspects of the project not related to ecology. In some situations license periods can be extended, but this involves more work and is not guaranteed as they must ensure that Test 3 is still met.

- **Modification of Licence**

  Minor issues can normally be addressed via filling out a modification request form. However, if the changes are significant, then submission of all relevant modified documentation will be required. All changes must be agreed in writing by the application via email prior to a licensing decision being reached. The applicant is given a 5 day response period, otherwise the 30 working day Natural England response deadline will be renewed and cause delays.

d) Scale of work involved and budgeting:

- **Mitigation** Production and submission of the license application pack, completion and submission of update reports or monitoring reports requested by Natural England as well as the completion of the licensed works themselves are time intensive and involve inspections, exclusions, site induction, report-writing time and other works requiring onsite supervision such as bat roost creation, soft strip and other necessary checks under the terms of the license. Costs for materials and equipment including bat boxes, exclusion materials, lifts/scaffolding to carry out soft strips, roost construction materials, etc. needs to be considered. Costs can vary considerably by project, but the applicant should ensure provision for all aspects of the licensed works is well-budgeted.

- **Monitoring** Most mitigation schemes require some sort of post-development monitoring, the type and extent of which would be confirmed in the licence method statement. A contract with the ecologist for all survey, mitigation and post-development monitoring surveys needs to be agreed for this at the application stage.