

53N BOWLAND LTD



ecology solutions ltd

CHIPPING,
NEAR PRESTON,
LANCASHIRE

Ecological Assessment

**e c o l o g y s o l u t i o n s f o r
p l a n n e r s a n d d e v e l o p e r s**

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1. INTRODUCTION

1.1. Background & Proposals

1.1.1. Ecology Solutions was commissioned in January 2011 to undertake an Ecological Assessment of the site at Chipping, near Preston, Lancashire for 53N Bowland Ltd. The study area (hereafter referred to as 'the site' is marked on Plan ECO1.

1.1.2. The proposals for the site cover part of the study area and are for renovation of the existing mill into a hotel, construction of a new hotel / spa, kids club and wedding venue together with conversion of existing barns into cottages, construction of a trail head centre as well as residential development (including self-build plots) with associated open space and infrastructure, and creation of a new cricket pitch (see the draft masterplan at Appendix 1).

1.2. Site Characteristics

1.2.1. The site is located to the north of the village of Chipping, near Preston, Lancashire, with the proposed cricket pitch situated to the south of the village of Chipping. The application boundary itself is composed of four parcels of land, however, an additional two parcels of land will be used for landscape and ecological mitigation (land labelled Parcels 1-6 on Plan ECO2). Five parcels of land comprise the northern part of the site where the land parcels are adjacent to, but nonetheless separated by, features such as waterways and public roads. The sixth parcel lies approximately 400 metres south of the northern sections of the site and is separated from the northern site area by the village of Chipping. The northern part of the site is bordered by the existing residential development of Chipping to the south and Chipping Brook runs through the centre of the site. To the east and north the site is bordered by grassland fields, woodland and open countryside beyond. To the west, the site is bordered by grassland fields, existing residential development and open countryside beyond. The proposed cricket pitch (southern parcel) is bordered to the west by the village of Chipping and to the north, south and east by grassland fields and open countryside.

1.2.2. The site itself comprises areas of rough grassland and immature trees, semi-improved grassland, immature and mature woodland, amenity grassland and small areas of scrub, ruderal vegetation and hedgerows. There are large areas of hardstanding and buildings in the centre of the site, comprising Kirk Mill. The Chipping Brook runs through the site, flowing north to south, and there is a mill pond in the northern part of the site. The proposed cricket pitch is a semi-improved grassland field bordered by trees and part of the Chipping Brook.

1.3. Ecological Assessment

1.3.1. This document assesses the ecological interest of the site at Chipping, near Preston, Lancashire. The importance of the habitats within the site is

evaluated with due consideration given to the guidance published by the Institute of Ecology and Environmental Management (IEEM)¹.

- 1.3.2. Where necessary mitigation measures are recommended so as to safeguard any significant existing ecological interest within the site. Specific enhancement opportunities that are available for habitats and wildlife within the site are detailed where appropriate, with reference to the 'UK Post-2010 Biodiversity Framework'². Finally conclusions are drawn.

¹Institute of Ecology and Environmental Management (2006) *Guidelines for Ecological Impact Assessment in the United Kingdom* (version 7 July 2006). <http://www.ieem.org.uk/ecia/index.html>

² JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012) *UK Post-2010 Biodiversity Framework. July 2012*. <http://jncc.defra.gov.uk/page-6189>

2. SURVEY METHODOLOGY

2.1. The methodology utilised for the survey work can be split into three areas, namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

2.2. Desk Study

2.2.1. In order to compile background information on the site and the surrounding area, Ecology Solutions contacted the Lancashire Environmental Records Network (LERN).

2.2.2. Additionally, the Environment Agency were contacted in order to obtain records on 'fish' presence along Chipping Brook.

2.2.3. Further information on designated sites from a wider search area was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)³ database. This information is reproduced where appropriate on Plan ECO1 and at Appendix 2.

2.3. Habitat Survey Methodology

2.3.1. Habitat surveys were initially carried out between April and July 2011 in order to ascertain the general ecological value of the site and to identify the main habitats and associated plant species.

2.3.2. Further update surveys were carried out in June 2013 to ascertain whether there had been any material change in the habitats present.

2.3.3. The site was surveyed based around extended Phase 1 survey methodology⁴, as recommended by Natural England, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail.

2.3.4. Using the above method, the site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified.

2.3.5. All the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent at different seasons. Nonetheless, the timing of the surveys included the optimal period for habitats present and it is considered an accurate and robust assessment has been made of the botanical interest.

³ <http://www.magic.gov.uk>

⁴ Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

2.4. Faunal Survey

2.4.1. Obvious faunal activity, such as birds or mammals observed visually or by call during the course of the surveys, was recorded. Specific attention was paid to any potential use of the site by protected species, species of principal importance (priority species), or other notable species.

2.4.2. In addition, specific surveys were undertaken for bats, Badgers *Meles meles*, Otter *Lutra lutra*, Water Vole *Arvicola amphibious* and reptiles.

2.4.3. Experienced ecologists undertook the faunal surveys with regard to established best practice and guidance issued by Natural England. Details of the methodologies employed are given below.

Bats

2.4.4. Field surveys were undertaken within the site with regard to best practice guidelines issued by, the Joint Nature Conservation Committee (2004⁵) and the Bat Conservation Trust (2007⁶) and (2012⁷).

2.4.5. The buildings within the site were subject to internal and external surveys in July 2011 and again in June 2013 using ladders, torches, mirrors, binoculars and an endoscope where necessary.

2.4.6. Evidence of the presence of bats was searched for, with particular attention paid to the roof areas and gaps between rafters and beams. Specific searches were made for bat droppings, which can indicate present or past use and extent of use, and other signs to indicate the possible presence of bats e.g. presence of stained areas, or areas that are conspicuously cobweb-free.

2.4.7. All trees within the site were assessed for their potential to support roosting bats in both April 2011 and April 2013. Features typically favoured by bats were searched for, including:

- Obvious holes, e.g. rot holes and old Woodpecker holes;
- Dark staining on the tree, below the hole;
- Tiny scratch marks around a hole from bat claws;
- Cavities, splits and or loose bark from broken or fallen branches, lightning strikes etc; and
- Very dense covering of mature Ivy over trunk.

2.4.8. In addition, surveyors undertook evening emergence surveys of the buildings considered to have potential to support roosting bats. These surveys were undertaken in April, June and July 2013 using Anabat SD1 and SD2 and SongMeter EM3 bat detectors to record the data, which was subsequently analysed using Analook bat sound analysis software. This survey method aimed to identify if any bats were roosting within the

⁵ Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3rd edition. Joint Nature Conservation Committee, Peterborough.

⁶ Bat Conservation Trust (2007). *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust, London.

⁷ Bat Conservation Trust (2012). *Bat Surveys – Good Practice Guidelines (2nd Edition)*. Bat Conservation Trust, London.

building and the position of any access points used by bats as well as the species and number of bats using any identified roosts.

- 2.4.9. Surveyors also undertook evening activity surveys across the site in July, August and September 2011 and again in April, June and July 2013 using Anabat SD1 and Anabat SD2 and SongMeter SM2 and EM3 bat detectors to record the data, which was subsequently analysed using Analook bat sound analysis software. This survey method, aimed to identify the level of foraging, and the species present foraging and commuting within the site as well as in offsite areas enclosed by the numerous land parcels which comprise the site, Anabat SD1/SD2 and SongMeter SM2 and EM3 bat detectors were also left within the site at strategic positions to record bat activity overnight. These locations can be seen on Plans ECO3-9.

Badgers

- 2.4.10. Specific surveys for Badgers *Meles meles* were carried out between April and July 2011 and June 2013.

2.4.11. The surveys comprised two main elements. Firstly, searching thoroughly for evidence of Badger setts. For any setts that were encountered standard survey practice would record the location of each sett entrance, even if the entrance appeared disused. The following specific information was recorded where appropriate:

- i) The number and location of well used or very active entrances; these are clear of any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.
- ii) The number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance, or have plants growing in or around the edge of the entrance.
- iii) The number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be together with the remains of the spoil heap.

- 2.4.12. Secondly, any evidence of Badger activity such as well worn paths, run-throughs, snagged hair, footprints, latrines and foraging signs was recorded so as to build up a picture of the use of the site by this species.

Otter

- 2.4.13. An assessment of the suitability of the Chipping Brook to support Otter was undertaken during the surveys in April 2011, with further specific surveys undertaken in June 2013. This involved careful searching along the banks of suitable water habitat for any signs of the presence of Otter, including spraints (faeces), footprints or other signs such as holts (place of shelter).

Water Vole

- 2.4.14. Surveys for Water Voles were undertaken in April 2011 and June 2013.
- 2.4.15. The survey work involved careful searching along the banks of suitable water habitat within the site, using the standard methodology as advocated within the Water Vole Conservation Handbook⁸ and recommended by Natural England. Access was obtained to both sides of the bank and a thorough search was possible to complete.
- 2.4.16. The basis of the surveys undertaken was to determine the presence / absence, and where necessary distribution and abundance, of Water Voles within the stretch of stream in the south of the site through the detection of signs such as burrows, feeding stations, latrines, faeces, and potentially from sightings of the animals themselves.
- 2.4.17. The surveys also allowed an assessment of the suitability of the existing habitats present to support Water Voles, to be undertaken.

Reptiles

- 2.4.18. Specific surveys for reptiles were carried out between April and July 2013. The methodology utilised principally derived from guidance given in the Herpetofauna Workers Manual.
- 2.4.19. Areas of suitable habitat were surveyed for the presence of reptiles using artificial refugia ("tins"). 89 0.5m x 0.5m roofing felt tins were placed within areas of suitable reptile habitat in the site (areas of rough grassland and immature trees labelled as **T1-T3** as well as an area of scrub edge to the east of **B4** and **B5**).
- 2.4.20. The tins provide shelter and heat up quicker than the surroundings in the morning and can remain warmer than the surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask under and raise their body temperature which allows them to forage earlier and later in the day.
- 2.4.21. To determine presence/absence the tins are checked for reptile activity over seven visits at appropriate times of the day (avoiding the middle of the day when the ambient air temperature is at its highest) in accordance with Natural England guidance. Optimum weather conditions for reptile surveying are temperatures between 10°C and 17°C, intermittent or hazy sunshine and little or no wind.

⁸ Strachan, R, Moorhouse, T and Gelling, M (2011), 'Water Vole Conservation Handbook' - WildCRU

3. ECOLOGICAL FEATURES

- 3.1. Habitat surveys were undertaken within the site between April to July 2011, with further update surveys carried out in June 2013.
- 3.2. The following main habitat/vegetation types were identified within the site:
 - Semi-improved Grassland;
 - Rough Grassland and Immature Trees;
 - Amenity Grassland and Planting;
 - Woodland and Trees;
 - Hedgerows;
 - Scrub;
 - River Corridor;
 - Pond; and
 - Buildings and Hardstanding.

- 3.3. The location of these habitats is shown on Plan ECO2.

Semi-Improved Grassland

- 3.4. There is a semi-improved grassland field, F1 (parcel 3), in the west of the northern part of the site. This field was recorded as having a long sward during the 2011 surveys, although was recorded as being grazed by Horses during the 2013 surveys. Species present within the sward include Cock's-foot *Dactylis glomerata*, Yorkshire Fog *Holcus lanatus*, Meadow Foxtail *Alopecurus pratensis*, Creeping Bent *Agrostis stolonifera*, Crested Dog's-tail *Cynosurus cristatus*, Meadow Grass *Poa* sp., Red Fescue *Festuca rubra* and Timothy *Phleum pratense*. Herbaceous species present include Creeping Buttercup *Ranunculus repens*, Common Sorrel *Rumex acetosa*, Broad-leaved Dock *Rumex obtusifolius*, Creeping Thistle *Cirsium arvense*, with encroaching Hawthorn *Crataegus monogyna* and Bramble *Rubus fruticosus* scrub along with very occasional Meadow Vetchling *Lathyrus pratensis*, Dandelion *Taraxacum officinale* agg., Cleavers *Galium aparine*, Germander Speedwell *Veronica chamaedrys*, Common Mouse-ear *Cerastium fontanum*, Red Clover *Trifolium pratense*, White Clover *Trifolium repens* and Selfheal *Prunella vulgaris*. Meadowsweet *Filipendula ulmaria*, Field Horsetail *Equisetum arvense*, Bird's-foot Trefoil *Lotus corniculatus*, Lesser Stitchwort *Stellaria graminea*, Yarrow *Achillea millefolium*, Bedstraw *Galium* sp., Rosebay Willowherb *Chamerion angustifolium* and Himalayan Balsam *Impatiens glandulifera* were recorded towards/along the banks of Chipping brook within F1.

- 3.5. There are areas of longer semi-improved grassland in the western half of field F2 (parcel 2), with a mown pathway linking the road to the short-mown amenity grassland cricket pitch. Species present include Perennial Rye-grass, Yorkshire Fog, Cock's-foot, Red Fescue, Creeping Bent and Meadow Foxtail. Herbaceous species present are dominated by Creeping Buttercup, with Broad-leaved Dock, Greater Plantain *Plantago major*, White Clover, Lesser Stitchwort, Rosebay Willowherb, Creeping Thistle, Common Nettle *Urtica dioica* and Common Sorrel also present. Soft Rush *Juncus effuses* and Cuckooflower *Cardamine pratensis* are also present in the southern half of this area.

- 3.6. There are two areas of rough semi-improved grassland in the southeast of the northern part of the site (parcel1), surrounded by an area of rough grassland and immature trees. Species present within the sward include Cock's-foot, False Oat-grass, Creeping Bent, Meadow-grass, Sweet Vernal-grass, *Anthoxanthum odoratum*, Timothy, Perennial Rye-grass, Meadow Foxtail, Crested Dog's-tail, Yorkshire Fog, Hard Rush *Juncus inflexus*, Soft Rush, Pendulous Sedge *Carex pendula* and Red Fescue. Herbaceous species present include Hogweed *Heracleum sphondylium*, Creeping Thistle, Black Knapweed *Centaurea nigra*, Common Nettle, Lesser Stitchwort, Broad-leaved Dock, White Clover, Yarrow, Creeping Buttercup and Germander Speedwell.
- 3.7. In the southern part of the site, there is a grazed semi-improved grassland field, F3 (parcel 6). Species present within the sward are dominated by Creeping bent with occasionally found Perennial Rye-grass and rarely found Annual Meadow-grass *Poa annua*, Sweet Vernal-grass and Meadow Foxtail. Herbaceous species present include abundant Creeping Buttercup and occasionally found Common Mouse-ear, White Clover, Chickweed *Stellaria media* and Daisy *Bellis perennis*. Rarely found species include Marsh Thistle *Cirsium palustre*, Cow Parsley *Anthriscus sylvestris*, Dandelion, Greater Plantain, Common Sorrel, Broad-leaved Dock, Germander Speedwell, Hogweed, Common Nettle, Thyme-leaved Speedwell *Veronica serpyllifolia* and Field Horsetail.

Rough Grassland and Immature Trees

- 3.8. There are three areas of rough grassland and immature trees within the site, T1 and T2 either side of the Chipping Brook in the south-east of parcel 1, and T3 to the east of the existing cricket pitch (F2) in parcel 2.
- 3.9. Species present within the sward of T1 and T2 include Cock's-foot, False Oat-grass, Creeping Bent, Meadow-grass, Sweet Vernal-grass, Timothy, Perennial Rye-grass, Meadow Foxtail, Crested Dog's-tail, Yorkshire Fog and Red Fescue with Hard Rush, Soft Rush, and Pendulous Sedge. There is a ruderal element in parts including Hogweed, Creeping Thistle, Cow Parsley, Common Nettle, Lesser Burdock *Arctium minus* and Great Willowherb *Epilobium hirsutum*. In more open areas species include Black Knapweed, Wild Carrot *Daucus carota*, Meadow Crane's-bill *Geranium pratense*, Lesser Stitchwort, Californian Poppy *Eschscholzia californica*, Broad-leaved Dock, White Clover, Yarrow, Creeping Buttercup, Common Sorrel, Bird's-foot Trefoil, Red Clover, Germander Speedwell, and Ground Ivy *Glechoma hederacea*. There are also species more indicative of woodlands (where tree cover has created greater shade) including Stinking Iris *Iris foetidissima*, Bluebell *Hyacinthoides non-scripta*, Red Campion *Silene dioica*, Moschatel *Adoxa moschatellina*, Ramsons *Allium ursinum*, Wood Anemone *Anemone nemorosa*, and Bittersweet *Solanum dulca*. Damper areas close to the Brook, including wet flushes draining into the Brook, support species such as Meadowsweet, Marsh Marigold *Caltha palustris*, Field Horsetail, Monkeyflower *Mimulus guttatus*, Common Bistort *Persicaria bistort*, Lesser Celandine *Ranunculus ficaria*, Opposite-leaved Golden Saxifrage *Chrysosplenium oppositifolium*, Water Mint *Mentha aquatica*, Watercress *Nasturtium officinale*, Angelica *Angelica sylvestris*, Yellow Pimpernel *Lysimachia nemorum*, Marsh Woundwort *Stachys palustris*, Alexanders *Smyrnium olusatrum* and Cuckooflower. Himalayan Balsam is found scattered throughout.

- 3.10. Within T1 and T2, immature tree species present include Silver Birch *Betula pendula*, Ash *Fraxinus excelsior*, Sycamore *Acer pseudoplatanus*, Weeping Willow *Salix x sepulcralis*, Willow *Salix* sp., Alder *Alnus glutinosa*, Dogwood *Cornus sanguinea*, Pedunculate Oak *Quercus robur*, Hazel *Corylus avellana*, Rowan *Sorbus acuparia*, Cherry *Prunus* sp., Pine *Pinus* sp., Apple *Malus* sp. and Field Maple *Acer campestre*.
- 3.11. Species present within the sward of the rough grassland of T3 include False Oat-grass and Reed Canary-grass. Herbaceous species present are limited and include Creeping Buttercup, Cleavers, Broad-leaved Dock, Bramble, Red Campion, Fern and Rosebay Willowherb with immature tree species providing the greatest cover in this area and including Ash, Pedunculate Oak, Silver Birch, Field Maple, Rowan, Apple, Cherry, Bird Cherry *Prunus padus*, Hawthorn, Hazel and Holly *Ilex aquifolium*.

Amenity Grassland and Planting

- 3.12. There is a short-mown cricket pitch in the west of the site (F2 in parcel 2) and a smaller area of amenity grassland and planting surrounding a residential property within parcel 3.
- 3.13. Species present within the sward of F2 include Perennial Rye-grass, Yorkshire Fog, Cock's-foot, Red Fescue, Creeping Bent and Meadow Foxtail. Herbaceous species present are very limited and include Creeping Buttercup and White Clover.
- 3.14. The amenity grassland surrounding the residential buildings B10-B12 is short-mown and dominated by Perennial Rye-grass. A number of amenity garden species are present within the gardens of this property.

Woodland and Trees

- 3.15. There are three areas of woodland present within the site, W1-W3. Woodland W1 in the north of the site is more mature in nature and is bisected by Chipping Brook. Woodland W2 along Kirk Mill Brow is situated on an embankment that slopes down towards the Chipping Brook and buildings of Kirk Mill (parcel 1). Woodland W3 in the south east of parcel 1 is a small area of immature woodland.
- 3.16. There are three sections of W1 at the northern tip of the site. Tree species present include Hazel, Ash, Sycamore, Bird Cherry, Alder, Osier *Salix viminalis*, Norway Maple *Acer platanoides*, Copper Beech *Fagus sylvatica*, Leyland Cypress *Cupressocyparis leylandii* and Rowan. Species present in the understorey include Dog Rose, Hawthorn, Elm *Ulmus* sp., Bramble, Raspberry *Rubus idaeus* and Guelder Rose *Viburnum opulus*. The ground flora is dominated by Lesser Burdock *Arctium minus* and Common Nettle with Red Campion, Hogweed, Ivy *Hedera helix*, Hart's Tongue *Phyllitis scolopendrium*, Dog's Mercury *Mercurialis perennis*, Cow Parsley, Herb Robert, Broad-leaved Dock, Opposite-leaved Golden Saxifrage, Ramsons, Greater Stitchwort *Stellaria holostea*, Ground Ivy, Creeping Buttercup, Cleavers, Hedge Woundwort *Stachys sylvatica*, Bluebell, Californian Poppy and False Oat-grass also present. The invasive Himalayan Balsam is also present within this area of woodland.

- 3.17. Woodland W2 borders Kirk Mill Brow. Tree species present include Ash, Rowan, Cherry, Pedunculate Oak, Yew *Taxus baccata*, Horse Chestnut *Aesculus hippocastanum*, Silver Birch, Beech, Osier and Leyland Cypress, with Blackthorn, Elm, Dog Rose, Holly and Rose sp. present in the understorey and a ground flora including Common Nettle, Bramble, Herb Robert, Cow Parsley, Ferns *Dryopteris sp.* and Bluebells.
- 3.18. W3 is a small area of immature woodland in the south-east of parcel 1. Immature tree species present include Ash with a line of Hawthorn planted at the edge of this area. Species present in the ground flora include those listed within T2.
- 3.19. There is a line of Hawthorn, Alder and Blackthorn trees present along the eastern boundary of F3 (parcel 6), with a ditch present along this tree belt. Lime *Tilia x europaea*, Field maple and Poplar *Populus sp.* trees are present at the boundaries of the northern half of the site. Ash, Alder, Sycamore and Alder trees are also present at the northern tip of this field.
- 3.20. Along the western boundary of the Mill Pond (parcel 4), species present include Sycamore, Ash, Hazel, Beech, Yew and Silver Birch, with Hawthorn and Bramble present in the understorey and ground floral species including Red Campion, Black Knapweed, Hogweed, Male Fern *Dryopteris filix-mas*, Cock's-foot, Lesser Burdock and Wood Avens *Geum urbanum*.

Hedgerows

- 3.21. There are seventeen hedgerows present within the site parcels, each of which are described individually below.
- 3.22. Of these hedgerows, H1, H2 and H7-H15 are considered to be species-rich, comprising five or more woody species.
- 3.23. H1 is situated along the north-eastern boundary of parcel 1 (adjacent to the former Kirk Mill Building), behind a stone wall, and is unmanaged. This hedgerow comprises Pedunculate Oak, Hazel, Hawthorn and Sycamore with Willow saplings. Species present in the ground flora include Common Nettle, Ramsons, Bramble, Ivy, Broad-leaved Willowherb *Epilobium montanum*, Great Willowherb, Herb Robert, Field Horsetail, Creeping Buttercup, Common Fleabane *Pulicaria dysenterica*, Hedge Woundwort, Red Campion, Creeping Bent, Cleavers, False Oat-grass and Meadow Foxtail.
- 3.24. H2 borders the north-eastern boundary of parcel 1 further south-east of H1. The Chipping Brook is present at its northern and southern ends. This hedgerow is unmanaged and gappy and has a post and wire fence along its length. Species present within this hedgerow include Hawthorn, Hazel, Blackthorn, Holly and Pedunculate Oak trees. Species present in the ground flora include Bramble, Cleavers, Ivy and Himalayan Balsam.
- 3.25. H3 is approximately 3-4m in height and borders the south-western boundary of parcel 1. This hedgerow comprises Blackthorn, Hazel, Sycamore and Ash. Species present in the ground flora include Dog's Mercury.

- 3.26. **H4** is associated with the back garden of the residential property B10 (parcel 3). This hedgerow comprises Snowberry *Symphoricarpos albus* and Hawthorn with Sycamore also present.
- 3.27. **H5** is also associated with the back garden of B10 (parcel 3) and is an amenity hedgerow comprising Lilac *Syringa vulgaris* and Garden Privet *Ligustrum ovalifolium*. This hedgerow is approximately 2m in height and is managed. Species present in the ground flora include Bramble, Cock's-foot, Creeping Bent and Yorkshire Fog.
- 3.28. **H6** is another short section of amenity hedgerow within parcel 3 that is approximately 1m in height, is unmanaged and is situated beneath a line of trees. This hedgerow comprises Garden Privet, Ash and Snowberry.
- 3.29. **H7** borders the north-western boundary of F1 (parcel 3), is approximately 2m in height and is unmanaged. This hedgerow comprises Hawthorn, Elder, Pedunculate Oak, Sycamore, Ash and Holly, with Red Campion, Creeping Thistle, Hedge Woundwort, Bramble and Common Nettle present in the ground flora.
- 3.30. **H8** borders the northern boundary of field F2 (parcel 2) and a road. This hedgerow comprises Hazel, Dog Rose, Hawthorn, Ash, Holly, Blackthorn, Sycamore and Ash trees. Species present in the ground flora include Bramble, Common Nettle, Cleavers, False Oat-grass, Bittersweet and Foxglove *Digitalis purpurea*.
- 3.31. **H9** is approximately 1.5m in height and is unmanaged. This hedgerow separates F2 from the rough grassland and immature trees of T2 (parcel 2). Species present include Hawthorn, Ash, Sycamore, Rowan and Hazel. Species present in the ground flora include Cleavers, Rosebay Willowherb and Red Campion.
- 3.32. **H10** is unmanaged in nature and borders the south-eastern boundary of T3 (parcel 3). This hedgerow is dominated by Hawthorn with Elder, Hazel, Dog Rose, Rowan, Sycamore, Field Maple and Holly also present. Species present in the ground flora include Common Nettle, Bramble, Rosebay Willowherb and Hedge Woundwort.
- 3.33. **H11** is approximately 4m in height and has a ditch running along its base. This hedgerow is associated with an off-site residential back garden south-west of parcel 2 and species present include Ash, Holly, Beech, Blackthorn, Willow, Sycamore, Hawthorn, Privet, Rowan, Alder and Elder. Species present in the ground flora include Bramble, Common Nettle and Foxglove.
- 3.34. **H12** borders the Kirk Mill Brow and the northern boundary of woodland W1 (parcel 5). Species present are dominated by Hawthorn, with Dog Rose, Sycamore, Snowberry, Elder and Holly also present. Species present in the ground flora include Creeping Buttercup, Common Nettle, Cow Parsley, Wood Avens, Creeping Thistle, Hard Rush, Great Plantain, Red Campion, Dog's Mercury, Greater Stitchwort and Hedge Woundwort.
- 3.35. **H13** also borders Kirk Mill Brow and woodland W1. This hedgerow is of the same species composition as H12.

- 3.36. **H14** borders Kirk Mill Brow and woodland W2 on the south-west of parcel 1. This hedgerow is managed on its road side and species present include Beech, Sycamore, Pedunculate Oak, Dog Rose, Elm, Blackthorn, Hawthorn, Holly, Box, Hazel and Ash. Species present in the ground flora include Ground Elder *Aegopodium podagraria*, Wood Avens, Dog's Mercury, Cleavers, Common Ragwort, Herb Robert, Lesser Burdock, Hedge Bindweed, Hedge Woundwort, Cow Parsley and Smooth Sowthistle *Sonchus oleraceus*.
- 3.37. **H15** is an extension of H8 (northern edge of parcel 2) and comprises Hazel, Dog Rose, Hawthorn, Ash, Holly, Blackthorn and Sycamore. Species present in the ground flora include Bramble, Common Nettle, Cleavers, False Oat-grass, Bittersweet and Foxglove.
- 3.38. **H16** is a short section of hedgerow that is an extension of H10 (southern edge of parcel 2) and is dominated by Hawthorn.
- 3.39. **H17** is present in the southern part of the site (parcel 6), is approximately 1.5m in height and is box cut. This hedgerow is dominated by Hawthorn with Lime trees also present.

Scrub

- 3.40. There are small areas of scrub present within the site. Species present include Silver Birch saplings, Sycamore saplings, Bramble, Snowberry, Hawthorn, Blackthorn, Ash, Rowan, Cherry, Yew and Raspberry, with Hedge Bindweed *Calystegia sepium*, Meadow Crane's-bill, False Oat-grass, Bush Vetch *Vicia sepium*, Meadowsweet, Ribwort Plantain *Plantago major*, Dandelion, Primrose *Primula vulgaris*, Common Nettle, Broad-leaved Dock, Creeping Buttercup, Cleavers, Herb Robert, Oxeye Daisy *Leucanthemum vulgare*, Ground Elder, Wood Avens, Cock's-foot, Ivy, Timothy, Red Campion and Broad-leaved Willowherb scattered amongst the scrub. Himalayan Balsam is also present within some of these areas of scrub.

River Corridor

- 3.41. The Chipping Brook and its tributaries run through the site, flowing from north to south. A section of the Chipping Brook also borders the western edge of F3 in the southern part of the site (parcel 6). This brook was seen generally to be shallow and stony in nature, with an underlying sandy substrate (although water levels fluctuate widely and can rise after periods of heavy rain). The central section of this brook, running through the derelict Kirk Mill complex, is canalised with concrete sides and is culverted/bridged in places to allow vehicular access across this brook.
- 3.42. In general, little vegetation is present within this brook, although Watercress is found rarely and there are occasional clumps of vegetation forming islands (e.g. between T1 and T2). The banks of the brook include species such as Bistort, the non-native and invasive Himalayan Balsam and the non-native Monkeyflower as well as other damp-loving species as listed for area T1.

Pond

3.43. There is a large mill pond in the northern part of the site which is surrounded by a stone wall along its north-eastern edge. A number of wildfowl are present on this pond. There is very little aquatic vegetation present save for blanket weed.

Buildings and Hardstanding

3.44. There are 17 buildings present within the site. These buildings are each described individually below.

3.45. The north-western half of **B1** (B1a) is a two-storey stone barn with large wooden doors, a pitched, slate-tiled roof at its western aspect and a pitched corrugated asbestos roof at its eastern aspect. To the east of this section is a brick built extension with a flat felt roof (B1b), with raised skylights present. The southern half of the building (B1c) is constructed of breeze blocks, with large wooden doors and a pitched, corrugated asbestos roof (with skylights present). Internally B1a has a roof void that is constructed with wooden beams and rafters with the slate tiles and asbestos sheeting laid directly onto the wooden batons. There are gaps present in these tiles and small makeshift skylights that allow light into the loft void. Gaps in the stone walls also allow light into the loft void and provide potential access points for bats. The roof of B1b is constructed with metal beams and wooden rafters, with wooden boarding inside the flat roof. Internally, B1c is open to the roof, with the corrugated asbestos sheeting laid directly onto the metal beams.

3.46. B2 is a brick and breeze block warehouse that is with a pitched, corrugated asbestos roof. There are wooden soffits present at the eaves of this building, some showing signs of rot. Skylights are present within the roof of this building. Internally the building is open to the roof and is generally light inside.

3.47. B3 is a large warehouse building with a grain store and large chimney attached to this building. There is a flat, felt roof present with smaller pitched, asbestos roof sections. This warehouse is constructed of brick with steel supports and corrugated metal cladding in parts. Large windows are present and there are skylights in the roof, making the building very light internally. There are two and three-storey sections to this building, although generally the building is built out to the roof.

3.48. B4 is a large warehouse constructed of brick with a pitched, asbestos roof. There is a breeze block and corrugated metal lean-to present attached to this building. Large windows and skylights are present in this building, making the building light internally.

3.49. B5 is an open-sided warehouse constructed of concrete pillars with a pitched, corrugated asbestos roof. Skylights are present within this roof and the building is open on all sides.

3.50. B6 is a small brick-built storage building, constructed with a flat, felt roof.

3.51. B7 is a two storey brick-built storage building, constructed with a flat, felt roof. There is lead flashing present at the eaves of this roof

- 3.52. B8 is a two storey, brick-built building with a flat, felt roof. Internally the building is light.
- 3.53. B9 is a small brick-built building attached to the southern end of B1c. This building has a sloping felt roof and the door is missing, making the building light internally and open to the elements.
- 3.54. B10, Malt Kiln House, is a residential dwelling constructed of stone with a pitched, slate-tiled roof. There are gaps between the tiles and at the apex of this building. No internal access was possible, although this building is to be unaffected by the development proposals.
- 3.55. B11 is a steel and wooden shed in the garden of B10, which has a pitched, metal roof.
- 3.56. B12 is a small wooden shed also in the garden of B10, which has a pitched felt roof.
- 3.57. B13, Kirk Mill, is a large, three storey derelict mill building. This building is constructed of stone and partially rendered brick, with a pitched, slate-tiled and corrugated asbestos roof. There are a number of gaps present between the tiles and at the eaves of the roof, with gaps present between wooden vents at the eastern end of the building. On the third floor of this building it is open to the roof where much of a previous ceiling has rotted away/been removed. The roof is constructed with wooden beams and rafters with the tiles / asbestos sheeting laid directly onto the batons at the eastern end. Skylights are present within the roof, making the building generally light internally. There are a few areas with plastic sheeting lining the tiles but felt lining is present on the western end. There is a mezzanine roof void at the eastern end of the building on the third floor. In this section the void is darker, with no skylights present, but the slate tiles are still laid directly onto the wooden batons. There is a wooden vent present at the eastern end of this mezzanine void area, with gaps present between the vents. A large mill wheel is present in a stone wheel house spanning the ground and first floors of this building, with water from the adjacent mill pool trickling through the building, and making the wheel house area damp. In the south-western section of the building, on the second floor, there is a false ceiling present with gaps in the ceiling allowing access to an enclosed roof void.
- 3.58. B14 is a cricket pavilion that is constructed of corrugated steel with a pitched, corrugated steel roof.
- 3.59. B15 is a metal container associated with the cricket pavilion (B14).
- 3.60. B16 is a brick-built outbuilding attached to B13. This building is constructed with a sloping, slate-tiled roof that is covered in moss and Ivy. There is felt lining present.
- 3.61. B17 is a part brick-built and part corrugated metal outbuilding associated with Kirk Mill, B13. This building is constructed with a sloping, corrugated asbestos roof and is has a large, open door, making the building light and open to the elements.

3.62. The remainder of the site comprises hardstanding, surrounding the buildings of Kirk Mill. Within the cracks of the hardstanding, there are patches of recolonising Himalayan Balsam.

Background Records

- 3.63. The LERN returned only one recent record of a notable plant species from within the search area, this being Bluebell (0.1km west of the site), a schedule 8 species that is protected from sale and trade. This species was also recorded within the site itself during the phase 1 survey.
- 3.64. Additionally the LERN returned 1988 records of Scots Pine, a nationally scarce tree species, located approximately 1km north of the site.

4. WILDLIFE USE OF THE SITE

- 4.1. General observations were made during the surveys of any faunal use of the site, with specific attention paid to the potential presence of protected species. Specific surveys were undertaken with regard to bats, Badgers, Otter, Water Vole and reptiles.

Bats

Trees

- 4.2. Four trees (Hazel in W1, Ash within H9, Ash on the boundary of Chipping Brook and T1 in parcel 1 and an Ash on the northern boundary of F3) are considered to have developed features suitable to support roosting bats albeit the potential is low (e.g. particularly the Hazel in W1). In any event these trees are to be retained as part of the development proposals and will be protected from damage during the construction phase in accordance with BS5837:2012 (Trees in relation to design, demolition and construction) with an appropriate root protection zone where necessary. The location of these trees is indicated on Plan ECO3.

Internal survey results 2011/2013

- 4.3. Internal surveys of buildings on site were completed in both 2011 and 2013. Initial surveys in 2011 identified small scatterings of bat droppings to the eastern end of B13 (upper third floor/mezzanine) with no other findings observed. At this time however it was not possible to gain access to buildings B1a, B10, B11 and B12 (the latter three buildings not being affected by proposals anyway). In 2013, two buildings (B1 and B13) were identified to contain bat droppings with no observed evidence of droppings or other indications of bat activity in any other buildings on site. Bat droppings were identified in 3 areas of B13, 5 being found on a windowsill on the second floor to the east of the building, 20 beneath the roof void on the second floor (again to the west of the building) and 10 scattered droppings on the mezzanine of the third floor (in the east of the building). In B1, droppings were identified in B1b only and here a total of 11 droppings were identified in two areas (5 droppings on a switch box on a wall adjoining B1a and 6 on a ledge at the south-eastern edge of B1b). The locations of the droppings identified in 2013 are indicated on Plan ECO7.

Activity Bat Surveys

- 4.4. Active bat surveys were also carried out on site initially in July, August and September 2011 and were conducted to assess the extent of bat activity across the site. Further surveys took place in April, June and July 2013. These surveys included both bat activity surveys and bat emergence/re-entry surveys of buildings with the potential to support roosting bats.
- 4.5. A bat activity survey was carried out on the 20th July 2011, with two surveyors completing site transects with Anabat detectors. Detectors were subsequently placed at locations 1 and 2 on Plan ECO3 to record overnight activity.
- 4.6. During this survey, the areas of higher recorded bat activity were those in close proximity to the water bodies located around the site (Chipping Brook and the

large Mill Pond which dominates parcel 4), especially along the south of parcel 1 and the north of parcels 4 and 5 as detailed on plan ECO3. In these areas there were large numbers of both Common Pipistrelle and Myotis sp. registrations. A number of Myotis bat registrations were also recorded foraging along trees and hedgerows in the east of parcel 3 whilst a small number of Soprano Pipistrelle and Common Pipistrelle registrations were recorded in areas of hardstanding within parcel 1. A high level of activity was recorded by the detectors once placed in their overnight locations (1 and 2 on Plan ECO3), the majority of registrations belonging to Common Pipistrelle bats. The results of the overnight recordings are detailed in table 1 below.

20 th July 2011		Number of registrations	
Species	Location 1	Location 2	
Common Pipistrelle	692	238	
Soprano Pipistrelle	0	2	
Myotis sp.	19	2	

Table 1. Bat survey results 20th July 2011.

- 4.7. A bat activity transect survey was carried out on 20th August 2011 with Anabat detectors placed at locations 3 and 4 (see Plan ECO4).
- 4.8. During the static survey, the majority of registrations recorded were of Common Pipistrelle, with most registrations recorded on the detector left at location 4. Low levels of bat activity were recorded during activity transects of the site, although these were during poor weather conditions (drizzle/rain). The locations of bat registrations recorded during the site transect are detailed on Plan ECO4. Table 2 details the overnight activity recorded by the Anabat SD1/SD2 detectors deployed in locations 3 and 4 (Plan ECO4).

20 th August 2011		Number of registrations	
Species	Location 3	Location 4	
Common Pipistrelle	30	174	
Soprano Pipistrelle	0	3	
Myotis sp.	0	0	

Table 2. Bat survey results 20th August 2011.

- 4.9. A bat activity survey was undertaken on the 27th September 2011, with an Anabat SD1/SD2 detector used to record bat activity during a transect of the site.
- 4.10. During this survey, the majority of bat registrations recorded again belonged to Common Pipistrelle bats, with scattered registrations of Myotis and Soprano Pipistrelle bats (see Plan ECO5).
- 4.11. A bat activity transect survey of the site was completed on the 30th of April 2013 using an Anabat SD1/SD2 detector to record bat activity across the site. Once again, the majority of registrations recorded during this transect belonged to Common Pipistrelle bats. A small number of Myotis and Soprano Pipistrelle registrations were also recorded. The locations of registrations recorded in this survey are detailed on Plan ECO6.

Bat Emergence/re-entry Surveys and Further Static Surveys

- 4.12. Bat emergence surveys of building B1 were undertaken on the 18th and 30th of April 2013 using Anabat SD1/SD2 detectors. No bats were observed emerging from the structure during the course of the first survey however a moderate level of Common Pipistrelle activity was recorded in the immediate area as well as a single registration of a Brown Long Eared bat. During the survey on the 30th April 2013, three Common Pipistrelle bats were observed emerging from the south-west aspect of B1a. The times of these emergences were 20:54, 21:11 and 21:14. The emergence location as well as bat flight lines observed during these two emergence surveys are detailed in Plan ECO 6.
- 4.13. Bat emergence and overnight static activity surveys were conducted on the 25th of June 2013 using Anabat SD1/SD2 and EM3 detectors. Buildings B1 and B13 (Plan ECO7) were subject to emergence surveys on this date.
- 4.14. A single Common Pipistrelle was recorded emerging from the western aspect of building B1a at 22:10. The precise emergence location and the flight path of this bat is detailed on Plan ECO7. In addition to this emergence, Common Pipistrelle activity was recorded throughout much of the emergence survey period as were low levels of Soprano Pipistrelle and Myotis bat activity. No other bat emergence activity was observed from this building on this date.
- 4.15. The emergence of three Common Pipistrelle bats from 2 points of access on the eastern elevation of building B13 was recorded on the 25.06.13. Two bats emerged at 21:59 and a further emergence was observed at 22:13. The precise locations of these emergences as well as observed flight-lines/foraging routes of bats in the immediate area are identified on Plan ECO7.
- 4.16. Bat detectors (Anabat SD1/SD2, SongMeter SM2 and EM3) were left at locations 1-6 on 25th June 2013 as detailed on Plan ECO7 with locations 5 and 6 being within buildings B13 (western end) and B1a respectively. The levels of activity recorded in this overnight period is detailed in Table 3 below.

25th June 2013	Number of registrations					
	Location 1	Location 2	Location 3	Location 4	Location 5	Location 6
Common Pipistrelle	6	52	0	45	0	0
Soprano Pipistrelle	0	0	0	6	0	0
Myotis sp.	2	0	0	0	0	0

Table 3. Bat survey results 25th June 2013.

- 4.17. Further static bat activity surveys were conducted on the 28th and 29th June 2013 with SongMeter SM2 detectors being placed at locations 7-10 with locations 8, 9 and 10 being inside buildings B1b, B1a and B13 (east end) respectively as detailed on Plan ECO8. No bat activity was recorded in either location 7 or 8 during the course of these surveys whilst a single Common Pipistrelle registration was recorded at location 9 (within B1a) on the 29th June 2013. The timing of this registration was approximately 1 hour 48 minutes after sunset and as such is considered more likely to represent a brief foraging/exploration excursion as opposed to a roosting bat. Several registrations of bat calls were recorded at location 10 within building B13 on both the 28th and 29th of June. On the night (and following morning) of the 28th

registrations of a Myotis bat species were recorded at 22:51 and 04:21, approximately an hour after sunset and twenty minutes before sunrise. The timings of these registrations are indicative of the bat using the building as a daytime roost as Myotis sp. are considered to emerge from roosts around 30-60 minutes after sunset and re-enter a similar time before sunrise. A number of Soprano Pipistrelle registrations were also recorded on the morning of 29th June 2013 between 04:18 and 04:31 (25 minutes before sunrise) and again the following night between 21:43 and 21:51. The timing of these registrations is again indicative of the species roosting in the building (B13).

28-29th June 2013	Number of registrations									
	Species	Location 7		Location 8		Location 9		Location 10		
		28th	29th	28th	29th	28th	29th	28th	29th	
Common Pipistrelle	0	0	0	0	0	1	1	1	0	
Soprano Pipistrelle	0	0	0	0	0	0	18	6		
Myotis sp.	0	0	0	0	0	0	2	0		

Table 4. Bat survey results 28-29th June 2013.

4.18. Final bat surveys were undertaken on the 9th/10th July 2013 using Anabat SD1/SD2 and SongMeter SM2 detectors. Building B13 was subject to an emergence survey with re-entrance surveys conducted the following morning (10th July 2013). During the course of these surveys, bats were observed both emerging and re-entering B13 at its eastern aspect. No emergence or re-entrance activity was noted at any other aspects of the building. A total of five Common Pipistrelle bats were observed emerging from the building, two at 22:12 and a further three at 22:31. A total of three Common Pipistrelle bats were observed re-entering B13, two at 03:30 (although these were noted to re-emerge a short time later) and an additional bat recorded entering the building at 04:16. The access point through which the bats emerged and re-entered the building is identified on Plan ECO9. From these results it is clear that the building represents an active roosting location for a small number of Common Pipistrelle bats.

4.19. Additional detectors were deployed overnight in locations 11-14 as labelled on Plan ECO9. The vast majority of registrations recorded by detectors deployed overnight were of Common Pipistrelle bats with low levels of Soprano Pipistrelle and Myotis sp. activity. Locations 11 and 12 were internal (B13) with the detector at the latter location (12) recording a number of Pipistrelle sp. registrations (mainly Common Pipistrelle) between 21:53 and 23:21, sunset being 21:39. One registration each of a Soprano Pipistrelle and Common Pipistrelle at 21:53 and 22:01 are considered likely to represent bats leaving a roost within the building whilst later registrations (more than 90 minutes after sunset) are considered more likely to represent brief foraging activity. A moderate level of bat activity was recorded in location 13 with high activity recorded in location 14 (close to the brook south of B13). Overnight bat activity recorded by the detectors is summarised in Table 4 below.

9th July 2013	Number of registrations			
	Location 11	Location 12	Location 13	Location 14
Species				
Common Pipistrelle	0	18	96	473
Soprano Pipistrelle	0	2	11	23
Myotis sp.	0	0	0	20
Noctule	0	0	0	0

Table 5. Bat survey results 9th June 2013.

Summary of bat surveys

Buildings

4.20. Internal surveys identified low levels of bat activity (low numbers of scattered droppings) in two buildings (B1 and B13). No evidence of bats was recorded in any of the other buildings and in the main the potential for roosts is very low due to the construction type and use of pre-fabricated materials that heat and cool too quickly to provide the stable conditions preferred by roosting bats.

4.21. Emergence and re-entrance surveys were conducted on the two buildings within the site, B1 and B13, which were considered to have potential to support roosting bats and within which evidence of bat activity was identified. The results of these surveys confirmed that the buildings are actively used as roosts by a small number of Pipistrelle bats (mainly Common Pipistrelle) and, in the case of B1b, possibly an individual or very small number of (based on the automated surveys) Myotis bats. Emergence and re-entry surveys were conducted in April, June and July 2013. A total of four Common Pipistrelle bats were observed emerging from the northern barn section of building B1a. These observations were made at the buildings western aspect across two surveys (30th April and 25th June), with another survey (April 18th) not recording any emergence activity. A total of 8 bats were observed to emerge from the eastern aspect of building B13 with emergences observed on the 25th of June (three Common Pipistrelle bats) and on the 9th of July (5 Common Pipistrelle). A re-entrance survey on the morning of the 10th July recorded three Common Pipistrelle bats entering B13, with two of those bats re-emerging shortly after entry. Additional registrations of Myotis and Soprano Pipistrelle bats were recorded by a detector placed overnight within B13 on the 28th June; the timing of these recordings are indicative that these species also roost within the building.

4.22. **Bat Activity.** The site was subject to bat activity surveys initially in 2011 (July, August and September) with update surveys completed in 2013 (April, June and July). Activity levels across the site were gauged through surveyors completing transects with bat detectors to note locations of bat activity and through the overnight deployment of automated bat detectors to assess activity levels at specific locations over extended periods. A relatively high level of bat activity was recorded across the site however this was largely localised to areas of water (Mill Pond and Chipping Brook), hedgerows and around two buildings (B1 and B13) which have since been confirmed as roosts (as detailed in Plans ECO3-ECO9). In general, the majority of bat activity recorded within the site was from Common Pipistrelle, and relatively high levels of activity were recorded for this species. Low to moderate levels of activity by Soprano Pipistrelle and Myotis bats was also recorded across the site. Whilst all bat species noted were recorded across the site, very few Myotis registrations

were recorded in areas of hardstanding, with these areas being largely used by Pipistrelle species. No registrations of any other bat species were recorded within the site.

4.23. **Background Information.** Records received from the Lancashire Environmental Records Network (LERN) identify a single record of an unidentified Myotis bat species recorded approximately 0.3km west of the site. It is not clear whether this record represents a species roost or a bat in flight. The record is dated to 2009.

Badgers

4.24. Specific surveys for Badgers were undertaken between April and July 2011 and June 2013, and no evidence of Badgers was recorded within the site.

4.25. However, it is considered the rough grassland and woodland present on site provide potential foraging opportunities for this species, should they be present in the wider area.

4.26. **Background Information.** The LERN returned no records of Badgers from within the site or within the wider search area.

Otter

4.27. No evidence of Otter was recorded within the Chipping Brook or its tributaries during the surveys carried out in June 2013.

4.28. **Background Information.** The LERN returned no records of Otter from within the site itself or within the wider search area.

Water Vole

4.29. No evidence of Water Vole was recorded during the surveys undertaken in April 2011 and June 2013.

4.30. **Background Information.** The LERN returned no records of Water Vole from within the site itself or the wider search area.

Other Mammals

4.31. No evidence of any other mammals was recorded during the surveys. However, it is considered the habitats within the site offer suitable opportunities for a range of small mammal species.

4.32. **Background Records.** The LERN returned no records of any other notable mammals from within the site itself or the wider search area.

Birds

4.33. A small number of common birds were recorded within the site during the surveys in 2011 and 2013. These include Goldfinch *Carduelis carduelis*, Chiffchaff *Phylloscopus collybita*, Jackdaw *Corvus monedula* (recorded breeding within B2 and B13), Great Tit *Parus major*, Pheasant *Phasianus colchicus*, Carrion Crow *Corvus corone*, Willow Warbler *Phylloscopus trochilus*,

Whitethroat *Sylvia communis*, Swift *Apus apus*, Wren Troglodytes troglodytes, Chaffinch *Fringilla coelebs*, Robin *Erithacus rubecula* and Long-tailed Tit *Aegithalos caudatus*. Oystercatcher *Haematopus ostralegus* were also recorded associated with field F6. Curlews *Numenius arquata* were recorded within the vicinity of both the northern and southern parts of the site, although not recorded on the site itself. Mallard *Anas platyrhynchos* and tufted Ducks *Aythya fuligula* were recorded on the Mill Pond.

4.34. The Red List and Priority Species Song Thrush *Turdus philomelos* was recorded within the site, with an anvil also recorded within the rough grassland and immature trees in the southern half of the northern part of the site (parcel 1). The Red List and Priority Species House Sparrow was recorded near the residential properties adjacent to parcel 6.

4.35. It is considered the hedgerows, woodland, immature trees and scrub within the site offer suitable foraging and nesting habitats for a range of common bird species.

4.36. **Background Information.** The LERN returned no records of any notable birds from within the site itself. A number of records of notable birds were recorded within the search area although no detailed resolution was returned along with the data request for the majority of these species. The Red List species Lapwing *Vanellus vanellus* was recorded approximately 0.6km northwest of the site in 2002. Species of note recorded at lower resolution⁹ within the search area include the Red List and Priority Species Grey Partridge *Perdix perdix*, Linnet *Carduelis cannabina*, Song Thrush, Spotted Flycatcher *Muscicapa striata* and Starling *Sturnus vulgaris* all recorded in 2002. House Sparrow *Passer domesticus*, also a Red List and priority species was recorded in the search area in 1995 whilst Fieldfare *Turdus pilaris* (Red List and a Schedule 1 species) was recorded in 2002.

4.37. As stated above, the Red List and priority Species House Sparrow and Song Thrush were recorded during a visit to the site.

4.38. It is considered that the rough grassland and immature tree habitats in land parcel 1, the areas of woodland and the hedgerows present across the site will offer a range of suitable nesting and foraging opportunities for the above protected species, although it is not considered that any particular species would be reliant upon the habitats present within the site due to the presence of improved opportunities in the wider area. In any event, the vast majority of these suitable habitats are to be retained and enhanced as part of the development proposals.

Reptiles

4.39. Specific surveys for reptiles were carried out between April and July 2013 within the rough semi-improved grassland and rough grassland and immature tree habitats within the site and no evidence of reptiles was recorded (see table 6 below).

⁹ e.g. identified by LERN as being present within the 3km² search area

Survey Number	Date	Temperature (°C)	Reptiles Found
1	30.04.13	12	0
2	01.05.13	13	0
3	25.05.13	12	0
4	28.06.13	16	0
5	30.06.13	15	0
6	20.07.13	15	0
7	22.07.13	13	0

Table 6. Reptile survey results 2013.

Invertebrates

- 4.40. Given the habitats present (e.g. rough grassland and woodland habitats) it is likely an assemblage of common invertebrate species would be present within the site. However, there is no evidence to suggest that any rare or notable species would be present.
- 4.41. **Background Information.** The LERN returned no records of any notable invertebrate species from within the site itself or within the wider search area.

5. ECOLOGICAL EVALUATION

5.1. The Principles of Ecological Evaluation

- 5.1.1. The latest guidelines for ecological evaluation produced by CIEEM¹⁰ propose an approach that involves professional judgement, but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.
- 5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe¹¹. These are broadly used across the United Kingdom to rank sites so priorities for nature conservation can be attained. For example, current sites of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.
- 5.1.3. In general terms, these criteria are size, diversity, naturalness, rarity and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological/geographical units are also incorporated into the ranking procedure.
- 5.1.4. Any assessment should not judge sites in isolation from others, since several habitats may combine to make it worthy of importance to nature conservation.
- 5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment and therefore additional factors need to be taken into account, e.g. a woodland type with a comparatively poor species diversity, common in the south of England, may be of importance at its northern limits, say in the border country.
- 5.1.6. In addition, habitats of local importance are often highlighted within a local Biodiversity Action Plan (BAP). The Lancashire BAP¹² currently lists a number of habitats and species.
- 5.1.7. Levels of importance can be determined within a defined geographical context from the immediate site or locality through to the International level.
- 5.1.8. The legislative and planning policy context are also important considerations and have been given due regard throughout this assessment.

¹⁰ Institute of Ecology and Environmental Management (2006). Guidelines for Ecological Impact Assessment in the United Kingdom (version 7 July 2006). <http://www.ieem.org.uk/ecia/index.html>.

¹¹ Ratcliffe, D A (1977). *A Nature Conservation Review: the Selection of Study areas of Biological National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.

¹² http://www.lancspartners.org/lbap/bap_longlist.asp

5.2. Habitat Evaluation

Designated Sites

5.2.1. **Statutory Sites:** There are no statutory designated sites of nature conservation value within or immediately adjacent to the site. The nearest Site of Special Scientific Interest (SSSI) is Bowland Fells SSSI, which is located approximately 1.7km northwest of the site. This SSSI is designated for supporting the largest expanse of blanket bog and heather moorland in Lancashire, the latter habitat of which is becoming increasingly rare in upland Britain. As well as supporting a diverse range of flora, the site provides suitable habitat for many upland breeding birds, three species of which (Hen Harrier, Merlin and Peregrine) are afforded special protection under the Wildlife and Countryside Act 1981 and Annex 1 of the EC Wild Birds Directive. The presence of these species within this SSSI results in the additional designation of Bowland Fells as a Special Protection Area (SPA). This SSSI/SPA is separated from the site by minor roads, existing residential development, agricultural land and open countryside. Hen Harrier, Merlin and Peregrine were not recorded within the site during the surveys undertaken, and it is not considered the site offers any suitable breeding opportunities for these species.

5.2.2. Under the EC Directive on Wild Birds (the Birds Directive) (Council Directive 2009/147/EEC, previously 79/409/EEC), Member States are required to take special measures to conserve the habitats of certain rare species of birds (listed in Annex I of the Directive) and regularly occurring migratory birds. In particular each Member State is required to classify the most suitable areas of such habitats as SPAs. This is designed to protect wild birds, and to provide sufficient diversity of habitats for all species so as to maintain populations at an ecologically sound level. All Bird Directive SPAs will also be part of the Natura 2000 network under article 3(1) of the Habitats Directive.

5.2.3. Under the Habitats Regulations, Competent Authorities have a duty to ensure that all the activities they regulate have no adverse effect on the integrity of any of the Natura 2000 sites. Regulation 61 of the Habitats Regulations requires that:

“61(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for a plan or project, which:-

- (a) is likely to have a significant effect on a European site or a European offshore marine site in Great Britain (either alone or in combination with other plans or projects) and*
- (b) is not directly connected with or necessary for the management of the site,*

shall make an appropriate assessment of the implications for the site in view of that site’s conservation objectives.

61(3) The competent authority must for the purposes of the assessment consult the appropriate nature conservation body and

have regard to any representations made by that body within such reasonable time as the authority may specify.

61(5) *In the light of the conclusions of the assessment, and subject to regulation 62, the authority shall agree to a plan or project only after having ascertained that it will not adversely affect the integrity of the European site.*

61(6) *In considering whether a plan or project will adversely affect the integrity of the site, the authority shall have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which they propose that the consent, permission or other authorisation should be given."*

5.2.4. Regulation 61 of the Habitats Regulations therefore sets out a two stage process. The first test is to determine whether the plan / project is likely to have a significant effect on the European site, the second test (if applicable) is to determine whether the plan / project will affect the integrity of the European site.

5.2.5. A Habitat Regulations Assessment (HRA) was carried out as part of the Ribble Valley Borough Council's Core Strategy. With regard to visitor pressure on the Bowland Fell SPA, the HRA states that

"A significant increase in visitor numbers in the SPA may result in disturbance to qualifying breeding bird interests or trampling of the blanket bog habitat. Nonetheless, visitor pressure is not regarded by Natural England (on the Natura 2000 data form) as a threat to the SPA."

5.2.6. As such, the HRA concludes that an Appropriate Assessment is not required in respect of visitor pressure. In addition, the development site is located next to numerous attractive footpath walks (that lie outside of the designated site), and given the small scale of the development, an increase in usage of the SPA / SSSI (and subsequently in visitor pressure) is considered unlikely in any event.

5.2.7. Standard engineering practice in respect of pollution control (as set out below) will negate any adverse effects on the Chipping Brook and in turn any possible impacts upon the SPA / SSSI; in any event the Chipping Brook flows from the north (from the SPA / SSSI) to the south into the development site.

5.2.8. Further, given the distance between this designated site and the proposed development site, combined with fact that the development site contains neither of the desirable habitats for which the Bowland Fells site has been designated (and which make it a suitable breeding location for specially protected bird species), it is not considered there will be any significant adverse effects (direct or indirect) on this statutory designated site as a result of the proposals either alone or in combination with any other plans or projects.

5.2.9. The next closest statutory designated site is Hodder River Section SSSI, a site designated for its geological interest and located approximately 7.6 km east of the site. Given the distance from the site any significant adverse

effects (direct or indirect) are considered unlikely. In any event, as this site is not designated for biological interest, it is not considered further in this ecological assessment.

5.2.10. The nearest Local Nature Reserve (LNR) is Cross Hill Quarry LNR, which lies approximately 11.6km east of the site. This LNR is an abandoned quarry that has undergone natural succession and today sustains flower rich grasslands, scrub and woodland; habitats that support diverse invertebrate and bird communities. This LNR is well separated from the site by minor roads, open countryside and agricultural land, and additionally by the River Hodder. Due to the large distance separating Cross Hill Quarry LNR from the site, it is not considered that there will be any significant adverse effects (direct or indirect) on this statutory designated site as a result of the proposals.

5.2.11. **Non-statutory Sites:** There are no non-statutory designations of conservation value within the site itself. The nearest non-statutory designated site is Clark House Farm Pasture Biological Heritage Site (BHS). This site is designated for its diverse grassland communities which represent a species rich pasture, as well as areas of scattered copse. This designated site borders land parcel 5 along most of its southern boundary and additionally borders the northwest tip of land parcel 3.

5.2.12. The proposals for the area of the site comprising land parcel 5 are for creation of wild foraging areas compatible with existing woodland habitat. Areas of existing woodland could be selectively managed in line with best practice procedure. This will result in the opening up of glades in the woodland as well. There is also the opportunity for additional planting of wildlife beneficial, native species such as Hazel, Elder, Rowan and Wild Strawberry which will provide a forage resource and further enhance the ecological value of the habitat. It is not considered that the proposals in this woodland habitat will have any significant negative impact on the adjacent designated site due to the nature of the potential works. Where the designated site borders parcel 3 of the site, the directly adjacent land uses would retain existing habitats in the form of semi-improved grassland and hedgerow. As such it is not considered that any works in the immediate area will impact on this non-statutory designated site.

5.2.13. Nonetheless it is recommended that works during the construction and operational phases of any development in areas adjacent to the site follow standard engineering protocols (e.g. erect fencing to safeguard sensitive habitats from erosion). In addition there is a slight potential that dust deposition during the construction phases of other land parcels could have an adverse impact on the BHS given its proximity to the site. However standard dust suppression techniques will be utilised during the construction period to prevent this from happening.

5.2.14. Another Biological Heritage Site lies to the immediate north of the site and is separated by Malt Kin Brow road. Lumpy Pasture BHS is designated again for supporting species rich grassland alongside areas of scattered trees and scrub. This designated site lies to the immediate north of land parcel 5 (in which proposed woodland management will take place) but is separated from other site areas in which building works will occur. As

such, again it is not considered that this designated site will suffer any significant direct or indirect negative effects as a result of the proposals.

- 5.2.15. A small number of additional non-statutory sites are located in the wider area, but no significant effects are anticipated.

Habitats

Semi-improved Grassland

- 5.2.16. Much of the site comprises semi-improved grassland that is of limited ecological value in terms of its species content, comprising only common and widespread species.

- 5.2.17. Whilst some areas of semi-improved grassland are to be lost to the development proposals, other areas would be retained and where possible enhanced (see below) as part of the development proposals. The areas in which grassland will be retained include land in the north of field F1 (parcel 3) and land in the south-east of parcel 1. The areas in which this habitat type will be lost include land within parcel 2 (west of field F2), the majority of field F3 where the new cricket pitch is proposed (parcel 6) and the south of field F1. (land parcel 3)

- 5.2.18. **Mitigation and Enhancements.** It is considered that no specific mitigation measures would be required given the low intrinsic value of the grasslands being lost. However, enhancements could be realised through the oversowing of the retained grassland with a species-rich grassland seed mixture (such as Emorsgate's Standard General Purpose Meadow Mixture EM2) and implementation of a suitable management regime, to increase the floristic diversity of the site accordingly. If possible, such species-rich grasslands could be created at the margins of the new cricket pitch (parcel 6).

Rough Grassland and Immature Trees

- 5.2.19. There are three areas of rough grassland and immature trees in the site and these are labelled T1-3 on Plan ECO2. Areas within T1 and T2 are considered to be of relatively good ecological value in terms of species content, with a mosaic of wet and dry areas. These more species rich habitat areas within T1 and T2 lie outside the footprint of the development proposals and would be retained post development. T3 represents a less species rich grassland sward dominated by common and widespread species and with a number of more immature trees. This area is considered to be of relatively low ecological value in the context of the site and will be lost to the development proposals in part (additional land of the same habitat type lies adjacent and outside the footprint of development east of parcel 2).

- 5.2.20. **Mitigation and Enhancements.** Areas of rough grassland and immature tree's labelled T1 and T2 will not be directly impacted upon by the development proposals. There is some slight potential that dust deposition during construction on land to the immediate west of these areas could have a slight adverse impact on the habitat however standard dust suppression techniques will be utilised during the construction period to

prevent this from happening. It is not considered that any specific mitigation would be required to compensate for the loss of T3. Nonetheless, enhancements to habitats T1 and T2 e.g. through appropriate management such as the removal of invasive Himalayan Balsam and the implementation of selective tree thinning would more than offset any losses to T3.

Amenity Grassland and Planting

5.2.21. There are 2 areas of regularly managed amenity grassland within the site, one being an existing cricket pitch located in land parcel 2, the other a lawn with associated planting surrounding a residential property in land parcel 3. The amenity grassland is dominated by Perennial Rye-grass, is mown short and is considered to be of negligible ecological value in the context of the site.

5.2.22. **Mitigation and Enhancements.** The amenity grassland comprising the existing cricket pitch will be lost to the development proposals whilst the grassland and amenity planting associated with residential properties will be unaffected. It is considered that no specific mitigation measures would be required for this loss due to the limited ecological value of the habitat at present. Nonetheless, the enhancements recommended above in relation to retained semi-improved grassland areas would more than offset losses to this area in ecology terms.

Woodland and Trees

5.2.23. The three areas of woodland present on site are labelled W1-3 in Plan ECO2. W1 is considered to be of relatively higher ecological value in the context of the site, containing a number of mature native trees although its interest is tempered by presence of non-native tree species and invasive species (Himalayan Balsam). The ground flora of this site includes species which are indicative of ancient woodland habitats e.g. Opposite-Leaved Golden Saxifrage, although the woodlands are not included on the ancient woodland inventory. W2 is located in the southwest of land parcel 1 and is also of some ecological value in the context of the site, containing a range of native tree species but this is again tempered by the presence of non-native species and a less diverse ground flora than W1, albeit it includes Bluebells. W3 is again considered to be of moderate ecological value limited mainly by the immature nature of many of the trees but with a good typical woodland ground flora establishing.

5.2.24. **Mitigation and Enhancements.** Woodland W3 lies outside the footprint of the development proposals and is well removed from proposed areas for built form such that it is not considered it would be adversely impacted on directly or indirectly by the construction or operation of the site. As such no mitigation proposals will be required. Woodland W2 is largely to be retained as part of the development proposals however a section will be lost to accommodate an access road into the hotel and spa complex. This small loss of habitat would be mitigated for by the enhancement of retained areas and planting of new woodland blocks (of greater area than that lost) alongside the access road on areas of existing hardstanding within parcel 1. Suitable enhancements to retained woodland could include the felling of non-native tree species such as Leyland Cypress

which have been identified in this area. Additional planting of native tree species such as Hazel, Alder and Hawthorn would increase the species diversity of this habitat as would the enhancement of ground flora through the sowing of native species mixes such as Emorsgate Woodland Mixture EW1. Woodland W1 lies to the north of the main development area and will be retained and managed as a wild forage area as part of the development proposals. Proposed management could include the selective management of trees (e.g. through coppicing, branch thinning and felling) to open up glades in the woodland and the planting of additional native floral species with known foraging value. This will further enhance the ecological value of the site and provide resources for both wildlife as well as local people. It is recommended that tree felling is limited to the non-native tree species identified in this woodland such as Sycamore and Leyland Cypress. Control of Himalayan Balsam in this area would also be of ecological benefit. Further enhancements for woodland habitat would be realised by creation of further blocks of habitat around the access entrance to parcel 3.

Hedgerows

5.2.25. There are 17 hedgerows present on site, several of which (H1, H2, H7-15) are considered species rich (support 5 or more woody species). These species rich hedgerows are of relatively greater ecological value in the context of the site. These hedgerows offer suitable foraging and nesting opportunities for birds and foraging and navigational opportunities for bats (see below). The majority of the hedgerows within the site are to be retained and protected under the confirmed development proposals, although there will be some minor losses to facilitate access (e.g. H4, H8, H9 and H14). Proposals for the development of residential dwellings in land parcel 3 has potential to impact further on hedgerows. It is recommended that, where possible, H9 and all other hedges be retained and integrated into the development proposals for the site.

5.2.26. **Mitigation and Enhancements.** It is recommended that where hedge losses occur, new hedgerow planting should be undertaken to offset these losses e.g. along the south and west boundaries of parcel 3. Any replacement hedgerow planting should comprise native species and be of a similar or greater length / area to that removed. Where hedgerows are retained, it is recommended that these be buffered from built form and, where possible, that enhancements are made e.g. through appropriate management and the sowing of wildlife beneficial native seed mixes such as Emorsgate Hedgerow and Woodland mixture EH1 to improve ground flora. These mixes contain a range of flowering plants which would benefit local invertebrate communities and equally be suitable aesthetically in areas of open space.

Scrub

5.2.27. Small areas of colonising scrub are present across the site and comprise a mix of sapling trees and herbaceous/ruderal plants. The invasive plant species Himalayan Balsam is also present in scrub to the south of land parcel 1 (see below). These areas are of limited ecological significance, comprising only common and widespread species. Whilst the scrub within the site is considered to offer some suitable foraging and nesting

opportunities for birds (see below) improved opportunities are considered to be offered elsewhere on site and within the wider area. The areas of scrub in parcel 1 and 4 will remain as part of the planning proposals whilst a small area of scrub enclosed by hedges H4, H5 and H6 would be lost to the access road for parcel 3.

- 5.2.28. **Mitigation and Enhancements.** The minor losses of this habitat would be of limited ecological significance in the context of the site and are considered to be more than offset by the provision and enhancement of other habitats within the site e.g. hedges and woodland.

River Corridor and Pond

- 5.2.29. The Chipping Brook and its tributaries flow from north to south through the site, whilst the Mill Pond (parcel 4) is situated to the north of the main development area. The banks of the brook support the non-native and invasive Himalayan Balsam and the non-native Monkeyflower. These wetland features will remain as part of the development proposals.

- 5.2.30. **Mitigation and Enhancements.** The brook will be fully protected and safeguarded from any adverse effects during the development. A buffer zone of no less than 4 metres will be retained adjacent to the Chipping Brook and this will be planted with species representative of those present in the local area whilst a new bridge crossing over the brook (within parcel 1) as part of the access to the new hotel/spa, cottages, kids club and wedding venue will be constructed. Other existing crossings (e.g. a footbridge and crossing further south of the proposed bridge) will be removed such that any possible adverse effect is negated overall. Where possible, a clear span bridge design should be used to minimise bankside vegetation losses where any new crossing is provided. Standard engineering practice in respect of pollution control, as part of the development proposals will negate any potential effect to the brook in terms of pollution and sedimentation.

- 5.2.31. With the above mitigation/safeguards put in place, it is considered unlikely that the development proposals will have any significant effect on ecological value of the brook or mill pond.

Himalayan Balsam

- 5.2.32. **Legislation.** Himalayan Balsam is listed in the Wildlife and Countryside Act 1981 (as amended) under Schedule 9 Part II, which makes it an offence to plant or otherwise cause the species to grow in the wild. In addition, under the Environmental Protection Act 1990, this species is classed as 'controlled waste' and must be disposed of safely at a licensed landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991. As such all relevant precautions should be taken when carrying out actions that could potentially spread the plants.

- 5.2.33. **Mitigation and Enhancements.** It is recommended that the Himalayan Balsam across the site be subject to specialist control measures to prevent further spread. Chemical control is possible using herbicides containing glyphosate or 2,4-D amine, and is best carried out in early spring. However, non-chemical control would be preferable due the plant's

location along waterbodies. This is possible by cutting, pulling and / or grazing. The Environment Agency is able to provide specialist advice for its disposal. Such a control programme would represent an ecological enhancement for the development proposals.

5.3. Faunal Evaluation

Bats

5.3.1. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended) (“the Habitats Regulations”). These include provisions making it an offence to:

- Deliberately kill, injure or take (capture) bats;
- Deliberately disturb bats in such a way as to be likely to significantly affect:-
 - (i) the ability of any significant group of bats to survive, breed or rear or nurture their young; or to hibernate; or
 - (ii) to affect significantly the local distribution or abundance of the species concerned;
- Damage or destroy any breeding or resting place used by bats;
- Intentionally or recklessly obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).

5.3.2. The words ‘deliberately’ and ‘intentionally’ include actions where a court can infer that the defendant knew ‘the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.

5.3.3. The offence of damaging (making it worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.

5.3.4. In accordance with the Habitats Regulations the licensing authority (Natural England) must apply the three derogation tests as part of the process of considering a licence application. These tests are that:

1. the activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
2. there must be no satisfactory alternative; and
3. the favourable conservation status of the species concerned must be maintained.

5.3.5. Licences can usually only be granted if the development is in receipt of full planning permission (and relevant conditions, if any, discharged).

5.3.6. **Site Usage.** There are four trees within the site that have developed features suitable to support roosting bats. These are to be retained as part of the development proposals.

5.3.7. Two buildings present on site (B1a and B13) have been identified as minor/small daytime roosts for Pipistrelle (Common Pipistrelle confirmed

and Soprano Pipistrelle considered likely) and Myotis bats. These buildings are to be retained and renovated as part of the proposals.

5.3.8. Bat activity is relatively high as would be expected around water bodies, hedgerows and tree belts and in the vicinity of buildings known to be occupied by bats. The majority of bat activity recorded within the site was from Common Pipistrelle bats, with low to moderate levels of activity recorded from Soprano Pipistrelle and Myotis bat species. No registrations belonging to any other bat species were recorded within the site.

5.3.9. The hedgerows and brook/pond within the site offer the most suitable foraging and navigational opportunities for bats, and in the main these features are to be retained and buffered with adjacent areas enhanced within the development proposals, with only minor losses of hedgerow/woodland W2 to facilitate access.

5.3.10. **Mitigation and Enhancements.** Whilst trees with identified roosting potential for bats are to be retained as part of the proposals, any trees to be felled within the woodland, e.g. for purposes of access through W2 and as part of any proposed management, should be re-checked for their potential to support roosting bats prior to their removal. Should any trees be recorded as having developed features suitable for roosting bats, it is recommended these be retained, where possible, or be subject to further tree climbing surveys to determine whether roosting bats are present.

5.3.11. The renovation of buildings B1 and B13 could result in direct effects on minor daytime roosts of Common Pipistrelle (B1) and Pipistrelle/(likely individual) Myotis sp. bats (B13). Given the need for extensive re-roofing and likely need for re-pointing and other repairs that could affect existing access points and the re-working of internal spaces to create new loft space areas it is considered that a Natural England licence would likely be necessary before development work can commence to these buildings.

5.3.12. Using the sliding scale of mitigation (Figure 4 in the Bat Mitigation Guidelines 2004)¹³ it is considered that the status of the roosts in B1 and B13 represent '*Small number of common species. Not a maternity site*'. The mitigation/compensation requirement would be somewhere between the following: '*Flexibility over provision of bat-boxes, access to new buildings etc. No conditions about timing or monitoring.*' and '*Provision of new roost facilities where possible. Need not be exactly like-for-like, but should be suitable, based on species' requirements. Minimal timing constraints or monitoring requirements.*'

5.3.13. Given the renovation of both B1 and B13 would create enclosed loft void spaces it is recommended that the loft spaces be designed to maximise suitability for roosting bats and that access points, e.g. by access tiles or 15-20mm holes in masonry/eaves or similar, be provided as part of the proposals. Access points should ideally be situated as close to known access points as possible. This would provide suitable conditions for Pipistrelle (Common and Soprano) and Myotis bats, which are predominantly crevice-hole dwellers that sometimes enter/fly within roof

¹³ English Nature (2004). Bat Mitigation Guidelines

voids. Ideally, the use of modern plastic roof linings should be avoided (as these are too smooth for bats to cling to) and traditional bitumastic/hessian roofing felt is preferable. Ridge tiles should ideally be laid 20mm from the ridge board and 30x100mm slots cut in the roofing felt to allow bats access to ridge tile areas. Ridge tiles should remain unfilled with mortar wherever possible. Post-construction, the addition of one metre lengths of rafter alongside roof timbers (spaced 2-25mm away with half bridged over to create a long enclosed cavity) would provide further crevices for roosting bats. A variety of crevices can be provided on walls at all heights, e.g. rough soft wood 300mm deep and 450-600mm long with a narrow space of about 30mm wide or even purpose-built bat boxes could be placed within the void.

5.3.14. The provision of new woodland blocks (particularly on areas of existing hardstanding) and hedgerow planting, the enhancement of retained grassland areas, and the retention and safeguard (e.g. buffering of the brook) of existing features used by bats would maintain and enhance foraging and navigational opportunities for bats post-development.

5.3.15. As a further enhancement, it is recommended that bat boxes, such as Schwegler 1FF boxes (see Appendix 3 for specifications), be erected on suitable retained semi-mature/mature trees within the site or on new/existing bridge structures across the Chipping Brook. This model of bat box is known to be attractive to a number of the smaller bat species, including Pipistrelle bats, which are the most abundant species recorded within the site. This measure will provide enhanced roosting opportunities within the site.

5.3.16. A sympathetic lighting regime associated with the new proposals is recommended to minimise light spillage into key areas such as along the retained hedgerows along the Chipping Brook, to maintain foraging and navigation opportunities in these areas and at/around access points to retained roosts in B1 and B13. It is recommended that the use of sodium / low LED lights, which produce less light spillage than other types of lighting, or other UV-filtered lights should be considered to reduce the light spillage on existing bat flight lines. In addition, the spillage of the light can be reduced further through use of low-level lights and the employment of lighting 'hoods' which will direct light below the horizontal plane, preferably at an angle less than 70 degrees.

Badgers

5.3.17. **Legislation.** The Protection of Badgers Act 1992 consolidates the previous Badgers Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain, with particularly high populations in the southwest.

5.3.18. As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage or obstruction of a Badger sett an offence. A sett is defined as "any structure or place which displays

signs indicating current use by a Badger”¹⁴. “Current use” of a Badger sett is defined by Natural England as “how long it takes the signs to disappear”, or more precisely, to appear so old as to not indicate “current use”.

5.3.19. In addition, the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting ‘cruel ill treatment’ of a Badger.

5.3.20. **Site Usage.** No evidence of Badgers was recorded within the site.

5.3.21. **Mitigation and Enhancements.** No specific mitigation would be required with regard to this species. However pre-commencement checks are recommended if there is a significant lapse in time between the current surveys and a start on site as this species can readily excavate new setts in short periods of time.

Birds

5.3.22. **Legislation.** Section 1 of the Wildlife and Countryside Act 1981 (as amended) is concerned with the protection of wild birds, whilst Schedule 1 lists species that are protected by special penalties. All species of birds receive general protection whilst nesting.

5.3.23. **Site Usage.** The habitats present on site which are considered to offer suitable foraging and nesting opportunities for a range of birds include; rough grassland and immature trees, areas of woodland and hedgerows. A small number of Red-Listed/Priority bird species have been observed on site, with observations limited to Song thrush and House Sparrow. Protected species identified in the desk study search area include Fieldfare with other Red-Listed/Priority Species including Lapwing, Grey Partridge, Linnet and Spotted Flycatcher. Again Song Thrush and House Sparrow were noted in the wider area.

5.3.24. **Mitigation and Enhancements.** The development proposals will retain the vast majority of the habitats considered suitable for nesting birds, with areas of proposed development largely restricted to areas of existing hardstanding (north section of parcel 1 and south section of parcel 4) as well as existing amenity grassland and semi-improved grassland. Most hedgerows/trees are to be retained within the development proposals, with only minor losses to hedges and W2 in order to facilitate. Further losses may result from the erection of residential dwellings in land parcel 2 (e.g. H9) however it is recommended that these hedges be retained and integrated into proposals where possible. An area of planted immature trees (T3) would also be lost to proposals in land parcel 2. Where losses to this habitat occur it is recommended that additional native hedge and tree planting elsewhere on site be completed as mitigation and in addition that retained hedgerows be enhanced through the seeding/planting of additional native trees and wildflowers to provide new suitable nesting and foraging opportunities for birds (see previous). The planting of berry/fruit-bearing species especially will be beneficial in providing seasonal

¹⁴ Protection of Badgers Act 1992 (as amended). Guidance on ‘Current Use’ in the definition of a Badger Sett <http://www.naturalengland.org.uk/ourwork/regulation/wildlife>

resources for birds. The above mitigation would more than account for any loss of habitats which may be utilised currently by common and priority or protected bird species. For example, Linnet, Song Thrush, Fieldfare and Spotted Flycatcher will benefit from enhanced hedgerows and woodland with an increased availability of berry/fruit bearing plants. House Sparrow and Starling will also benefit from the retention of these habitats and furthermore from the enhancement of rough ground and grasslands. Lapwing and Grey Partridge are unlikely to utilise the site at present due the habitats available being sub-optimal for them. Nonetheless the retention and enhancement of areas of rough and semi-improved grassland may provide some opportunities for these species.

5.3.25. It is recommended that clearance of any suitable nesting vegetation, including tree felling, be undertaken outside the bird nesting season (March to July/August inclusive) to avoid any potential offence. Pre-renovation/ pre-demolition checks of buildings should also be undertaken given the presence of nesting birds in B13 Should the above timing constraints conflict with any timetable works, it is recommended that works commence only after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present. If nesting birds are found to be present during checks then clearance (or demolition/renovation) would need to be delayed until young have fledged.

5.3.26. Simple enhancement measures could ensure the ornithological interest at the site is increased. For example, the erection of nest boxes on retained trees. Using nest boxes of varying designs would maximise the species complement attracted to the site and, where possible, these could be tailored to provide opportunities for Red Listed / Priority Species known from the local area (see Appendix 4 for suitable examples) such as Spotted Flycatcher and House Sparrow.

Invertebrates

5.3.27. **Site Usage.** Given the habitats present it is likely an assemblage of common invertebrate species would be present within the site.

5.3.28. **Mitigation and Enhancements.** Whilst no specific mitigation is required, the recommendations made above such as the management and enhancement of the woodland (and the provision of glades) and creation of species-rich grasslands will enhance habitat diversity and provide enhanced opportunities for a range of invertebrate species. Retaining cut vegetation on site in the form of log piles, could further benefit local invertebrate communities.

Reptiles

5.3.29. **Legislation.** All six British reptile species receive a degree of legislative protection that varies depending on their conservation importance.

5.3.30. Rare, endangered or declining species receive 'full protection' under the Wildlife and Countryside Act 1981 as well as protection under The Conservation of Habitats and Species Regulations 2010, which transposed into UK law the European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, more

commonly known as the Habitats Directive. Species that are fully protected include Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis*. These receive the following protection from:

- killing, injuring, taking;
- possession or control (of live or dead animals, their parts or derivatives);
- damage to, destruction of, obstruction of access to any structure or place used for shelter or protection;
- disturbance of any animal occupying such a structure or place; and
- selling, offering for sale, possession or transport for purposes of sale (live or dead animal, part or derivative).

5.3.31. Due to their abundance in Britain, Common Lizard *Zootoca vivipara*, Slow-worm *Anguis fragilis*, Grass Snake *Natrix natrix* and Adder *Vipera berus* are only 'partially protected' under the Wildlife and Countryside Act 1981 (as amended) and as such only receive protection from:

- deliberate killing and injuring;
- being sold or other forms of trading.

5.3.32. **Site Usage.** No evidence of Reptiles was recorded within the site.

5.3.33. **Mitigation and Enhancements.** No specific mitigation would be required with regard to this faunal group.

Freshwater Fish

5.3.34. **Legislation.** Several freshwater fish species are protected to some extent by the Salmon and Freshwater Fisheries Act 1975. Species afforded a degree of protection under this act include Salmon and migratory Trout species. Protection afforded to these species includes, but is not limited to:

- Prohibition of certain modes of taking or destroying fish;
- Obstruction to passage of fish

5.3.35. Additionally, both Atlantic Salmon and Brook Lamprey are designated as Annex II species and as such are offered a level of protection under the EC Habitats Directive. This protection extends to the designation of SAC (Special Area of Conservation) status to sites that hold either a significant population of the species or are otherwise key sites for life cycle activities such as spawning.

5.3.36. **Site Usage.** Due to the identification of four aquatic species (Brown Trout, Atlantic Salmon, European Eel and Brook Lamprey) in river stretches upstream and downstream of the section running through the site, it is considered likely that these species will migrate along or otherwise utilise the river stretch within the site.

5.3.37. **Mitigation.** No specific mitigation is required as there are no proposals that would affect the use of the Brook by these species.

Other Species

- 5.3.38. Based on the habitats present and the surveys undertaken it is not considered that any other protected or notable species would be present within the site or affected by the proposals.

6. PLANNING POLICY CONTEXT

6.1. The planning policy framework that relates to nature conservation in Chipping, Lancashire, is issued at two main administrative levels: nationally through the National Planning Policy framework (NPPF); and locally through the West Ribble Valley Borough Council Local Plan and the Local Development Framework. The proposed development will be judged in relation to the policies contained within these documents.

6.2. National Policy

National Planning Policy Framework

6.2.1. The National Planning Policy Framework (NPPF) sets out the Government's requirements for the planning system and was adopted on 27th March 2012. It replaces previous national planning policy, including PPS9 (Biodiversity and Geological Conservation) published in 2005.

6.2.2. The key element of the NPPF is that there should be 'a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking' (paragraph 14). It is important to note that this presumption 'does not apply where development requiring Appropriate Assessment under the Birds or Habitats Directives is being considered, planned or determined' (paragraph 119), although this is not applicable to the proposals.

6.2.3. A number of policies in the NPPF are comparable to those in Planning Policy Statement (PPS)9 (which it replaced), including reference to minimisation of impacts to biodiversity and provision of net gains to biodiversity where possible (paragraph 109) and ensuring that Local Authorities place appropriate weight to statutory and non-statutory nature conservation designations, protected species and biodiversity.

6.2.4. The NPPF also considers the strategic approach which local authorities should adopt with regard to the protection, enhancement and management of green infrastructure, priority habitats and ecological networks, and the recovery of priority species.

6.2.5. Paragraph 118 of the NPPF comprises a number of principles which Local Authorities should apply, including encouraging opportunities to incorporate biodiversity in and around developments, provision for refusal of planning applications if significant harm cannot be avoided, mitigated or compensated for, applying the protection given to European sites to potential SPAs, possible SACs, listed or proposed Ramsar sites and sites identified (or required) as compensatory measures for adverse effects on European sites, and the provision for the refusal for developments resulting in the loss or deterioration of 'irreplaceable' habitats unless the need for, and benefits of, the development in that location clearly outweigh the loss.

6.2.6. National policy therefore implicitly recognises the importance of biodiversity and that, with sensitive planning and design, development and conservation of the natural heritage can co-exist and benefits can, in certain circumstances, be obtained.

6.3. Local Policy

Ribble Valley Borough Council Districtwide Local Plan Review

- 6.3.1. This current Local Plan sets out detailed policies for the development and use of land in the borough. This plan is currently under review and a number of policies listed within it have since become obsolete. Nonetheless, there are several policies relating to ecology and conservation that have been saved as part of the Local Development Framework (LDF) process.
- 6.3.2. The relevant retained policies relating to Nature Conservation are ENV1, 7, 8, 9, 10, 12, 13, 24 and 25.
- 6.3.3. ENV1 relates to the conservation and enhancement of the Forest of Bowland Area of Outstanding Natural Beauty (AONB).
- 6.3.4. ENV7 relates to the protection of wildlife species protected by law and prevents developments which would have adverse impacts upon these species unless appropriate mitigation is ensured.
- 6.3.5. ENV8 relates to the nature conservation of SSSI's and other designated/potential sites of international importance, and requires that any proposals do not adversely impact on these sites unless there are overriding public benefits of them.
- 6.3.6. ENV9 concerns the protection of County Biological Heritage Sites within or adjacent to developments.
- 6.3.7. ENV10 relates to the imposing of certain conditions/agreements with the aim of conserving or mitigating sites of nature conservation mentioned in ENV8 and 9.
- 6.3.8. ENV12 concerns the prevention of loss or damage to ancient woodlands as a result of development proposals.
- 6.3.9. ENV13 relates to the protection of important landscape features in the borough and necessitates mitigation where features are impacted.
- 6.3.10. ENV24 supports the implementation of renewable energy schemes in which there is considered to be no unacceptable harm to areas of conservation interest within the local environment.
- 6.3.11. ENV25 relates to the assessment of proposed renewable energy schemes and sets basic criteria by which schemes will be assessed
- 6.3.12. Other policies such as ENV2, 4 and 5 also relate to ecology however are these are not relevant to the current proposal due to them relating to

specific areas, localities and designations (e.g. greenbelt land and named towns) absent from the wider area surrounding the site.

6.3.13. A Habitat Regulations Assessment (HRA) was carried out as part of the Ribble Valley Borough Council's Core Strategy. With regard to visitor pressure on the Bowland Fell SAC, the HRA states that

“A significant increase in visitor numbers in the SPA may result in disturbance to qualifying breeding bird interests or trampling of the blanket bog habitat. Nonetheless, visitor pressure is not regarded by Natural England (on the Natura 2000 data form) as a threat to the SPA.”

6.3.14. As such, the HRA concludes that an Appropriate Assessment is not required in respect of visitor pressure.

6.4. Discussion

6.4.1. The development proposals will have no adverse effects on any statutory or non-statutory designated sites and much of the development will involve the renovation of existing infrastructure as opposed to new builds. As stated above, a HRA was undertaken by the Ribble Valley Borough Council, which concluded that visitor pressure on the Bowland Fell SPA is not considered to be a threat to the SPA and no other significant adverse effects upon the SPA, either alone or in combination with other plans or projects, are considered likely to result from the proposals. Furthermore a number of recommendations for environmental enhancements have been proposed in this document in order to retain and where possible enhance the ecological value of the site. As such it is considered to satisfy policies ENV1, 8, 9 and 10.

6.4.2. The development proposals will involve the renovation of two buildings supporting roosting bats however this will be mitigated for through the retention of loft spaces in renovated buildings and the provision of access points (e.g. through access tiles or small holes in masonry). These loft spaces should be enhanced to accommodate roosting bats where possible e.g. through the use of traditional bitumastic/hessian roofing felt (as opposed to plastic) or the provision of one metre lengths of rafter alongside roof timbers (spaced 2-25mm away with half bridged over to create a long enclosed cavity). Additionally the retention of trees with roosting potential for bats and the provision of new woodland blocks and hedgerow planting would also provide benefits for bats post-development. The retention and enhancement of the vast majority of hedgerows and all woodland as well as other areas of ecological interest are key to the proposals and will ensure that existing bird species known to utilise the site at present will still be supported by the site post development. The prevention of water pollution and the protection of habitats both upstream and downstream of the proposed development, as set out above, will prevent any adverse effects on the Chipping Brook. As such, the proposed development is considered to satisfy policies ENV7, 24 and 25.

6.4.3. A minimum 4m buffer along the Chipping Brook will be retained and planted with species of local value, providing connectivity through the site and to off-site areas. As mentioned above, hedgerows and woodland are to be largely retained and enhanced as part of the development proposals

whilst the most diverse areas of rough grassland and immature trees will be unaffected. No ancient woodland will be impacted upon by the proposed development. As such the development proposals are considered to satisfy policies ENV12 and 13.

- 6.4.4. In conclusion, implementation of the recommended measures set out in this report would enable development of the site to accord with national and local planning policy for ecology and nature conservation.

7. SUMMARY AND CONCLUSIONS

- 7.1. Ecology Solutions was commissioned in January 2011 to undertake an Ecological Assessment of the site at Chipping, near Preston, Lancashire (study area marked on Plan ECO1) for 53N Bowland Ltd.
- 7.2. The proposals for the site cover part of the study area and are for renovation of the existing mill into a hotel, construction of a new hotel / spa, kids club and wedding venue together with conversion of existing barns into cottages, construction of a trail head centre as well as residential development (including self-build plots) with associated open space and infrastructure, and creation of a new cricket pitch (see Appendix 1).
- 7.3. The site was surveyed based around extended Phase 1 survey methodology, as recommended by Natural England, between April and July 2011, with update surveys carried out in June 2013. In addition specific surveys were undertaken in respect of bats, Badgers, Dormice, Otter and Water Vole.
- 7.4. There are not considered to be any significant adverse effects on any statutory and non-statutory sites of nature conservation interest from the development proposals.
- 7.5. No evidence of Badgers, Dormice, Otter or Water Vole was recorded within the site.
- 7.6. Two buildings present on site (B1a and B13) have been identified as minor/small daytime roosts for Pipistrelle (Common Pipistrelle confirmed and Soprano Pipistrelle considered likely) and Myotis bats as a result of internal bat surveys and emergence/re-entry surveys. These buildings are to be retained and renovated as part of the development proposals.
- 7.7. The majority of bat activity recorded within the site was from Common Pipistrelle bats, with low to moderate activity recorded from Soprano Pipistrelle and Myotis bats. Bat activity was largely localised to areas of water (Mill Pond and Chipping Brook), hedgerows and around buildings identified as current bat roosts.
- 7.8. Mitigation measures proposed for bats on-site include the retention of loft voids within B1a and B13, and the enhancement of these to allow improved access and roosting opportunities for bats. A sensitive lighting regime will ensure dark corridors are retained for bats, whilst the inclusion of bat boxes within the site will provide further roosting opportunities. The majority of hedgerows, rough grassland and woodland habitats on site are to be retained and enhanced and these will provide foraging and commuting opportunities for bats.
- 7.9. The planting of new native hedgerows and trees will provide enhanced opportunities for birds, while the erection of bird boxes within the site will also provide new nesting opportunities for birds.
- 7.10. Further recommendations have been made to safeguard other protected and notable species present within the site, including nesting birds. Recommendations have also been put forward to achieve ecological enhancements of habitats and protected/notable species wherever possible.

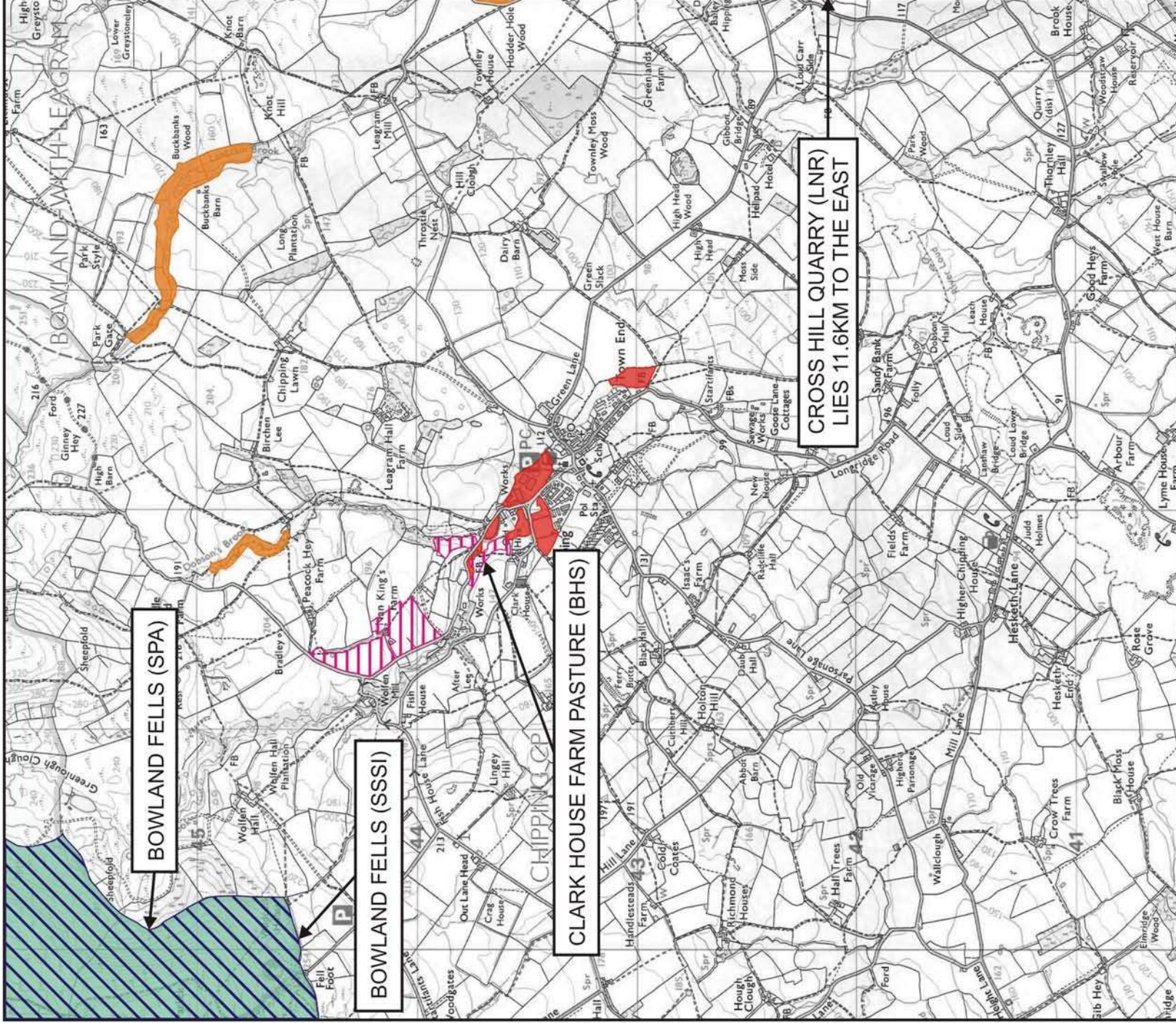
7.11. In conclusion, through the implementation of the safeguards and recommendations set out within this report it is considered that the proposals accord with planning policy with regard to nature conservation at all administrative levels.

PLANS AND APPENDICES

PLANS

PLAN ECO1

Site Location and Ecological Designations



BOWLAND FELS (SPA)

BOWLAND FELS (SSSI)

CLARK HOUSE FARM PASTURE (BHS)

**CROSS HILL QUARRY (LNR)
LIES 11.6KM TO THE EAST**

KEY:

 STUDY AREA

 SPECIAL PROTECTION AREA (SPA)

 SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)

 BIOLOGICAL HERITAGE SITE (BHS)

 ANCIENT SEMI-NATURAL WOODLAND (ASNW)/
PLANTED ANCIENT WOODLAND SITE (PAWS)



ecology solutions ltd

**5161: CHIPPING,
NEAR PRESTON**

**PLAN ECO1:
APPLICATION SITE LOCATION AND
ECOLOGICAL DESIGNATIONS**



PLAN ECO2

Ecological Features



Land of proposed cricket pitch to the south of Chipping Village

- KEY:**
- STUDY AREA
 - ROUGH GRASSLAND AND IMMATURE TREES
 - SEMI-IMPROVED GRASSLAND
 - WOODLAND
 - AMENITY GRASSLAND
 - HARDSTANDING
 - BUILDING
 - SCRUB
 - BROOK / POND
 - SCATTERED SCRUB
 - TREE
 - SPECIES-RICH HEDGEROW
 - HEDGEROW
 - HIMALAYAN BALSAM
 - WET ISSUE










5161: CHIPPING,
NEAR PRESTON

PLAN ECO2:
ECOLOGICAL FEATURES

PLAN ECO3

Bat Survey Results July 2011



- KEY:**
-  STUDY AREA
 -  BUILDING
 -  TREE WITH POTENTIAL TO SUPPORT ROOSTING BATS
 -  COMMON PIPISTRELLE REGISTRATION
 -  SOPRANO PIPISTRELLE REGISTRATION
 -  MYOTIS SP. REGISTRATION
 -  AUTOMATED BAT DETECTOR OVERNIGHT LOCATION










5161: CHIPPING,
NEAR PRESTON

PLAN ECO3:
BAT ACTIVITY RESULTS
JULY 2011

PLAN ECO4

Bat Survey Results August 2011



- KEY:**
-  STUDY AREA
 -  BUILDING
 -  TREE WITH POTENTIAL TO SUPPORT ROOSTING BATS
 -  COMMON PIPISTRELLE REGISTRATION
 -  SOPRANO PIPISTRELLE REGISTRATION
 -  MYOTIS SP. REGISTRATION
 -  AUTOMATED BAT DETECTOR OVERNIGHT LOCATION









5161: CHIPPING,
NEAR PRESTON

PLAN ECO4:
BAT ACTIVITY RESULTS
AUGUST 2011

PLAN ECO5

Bat Survey Results September 2011



- KEY:**
-  STUDY AREA
 -  BUILDING
 -  TREE WITH POTENTIAL TO SUPPORT ROOSTING BATS
 -  COMMON PIPISTRELLE REGISTRATION
 -  SOPRANO PIPISTRELLE REGISTRATION
 -  MYOTIS SP. REGISTRATION

Land of proposed cricket pitch to the south of Chipping Village

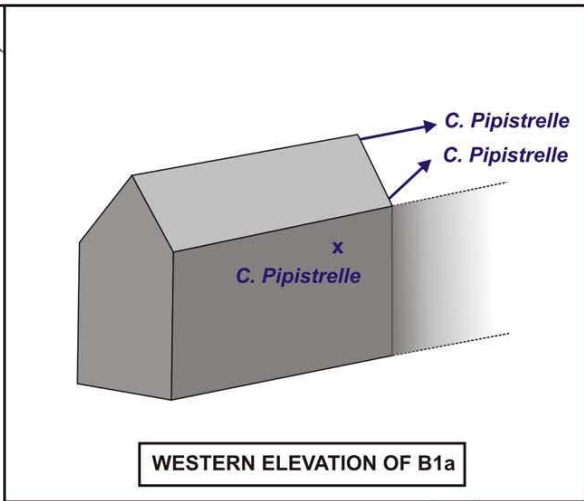
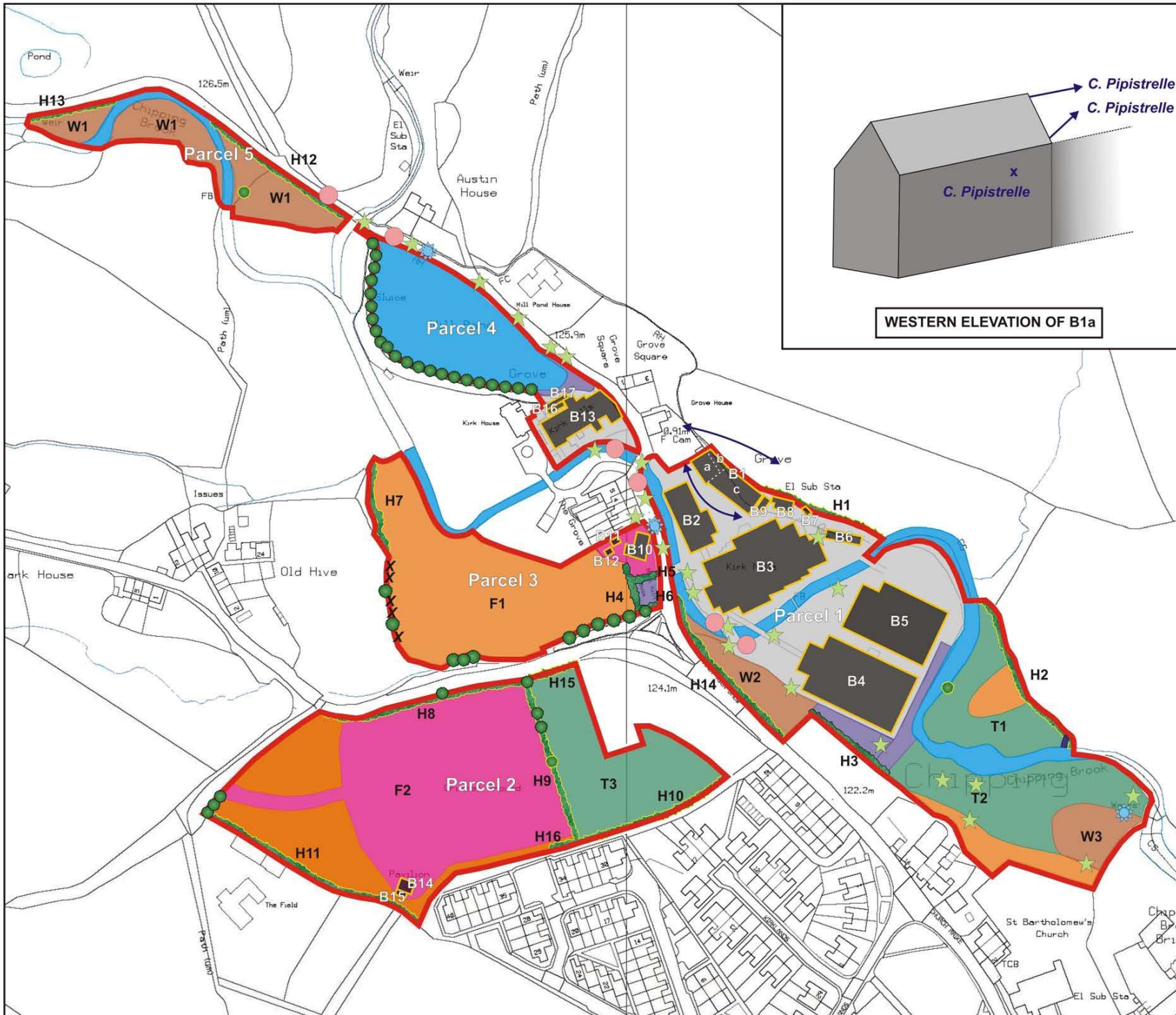


5161: CHIPPING,
NEAR PRESTON

PLAN ECO5:
BAT ACTIVITY RESULTS
SEPTEMBER 2011

PLAN ECO6

Bat Survey Results April 2013



KEY:

-  STUDY AREA
-  BUILDING
-  TREE WITH POTENTIAL TO SUPPORT ROOSTING BATS
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  MYOTIS SP. REGISTRATION
-  BAT FORAGING / COMMUTING ROUTE
-  OBSERVED BAT EMERGENCE / RE-ENTRANCE

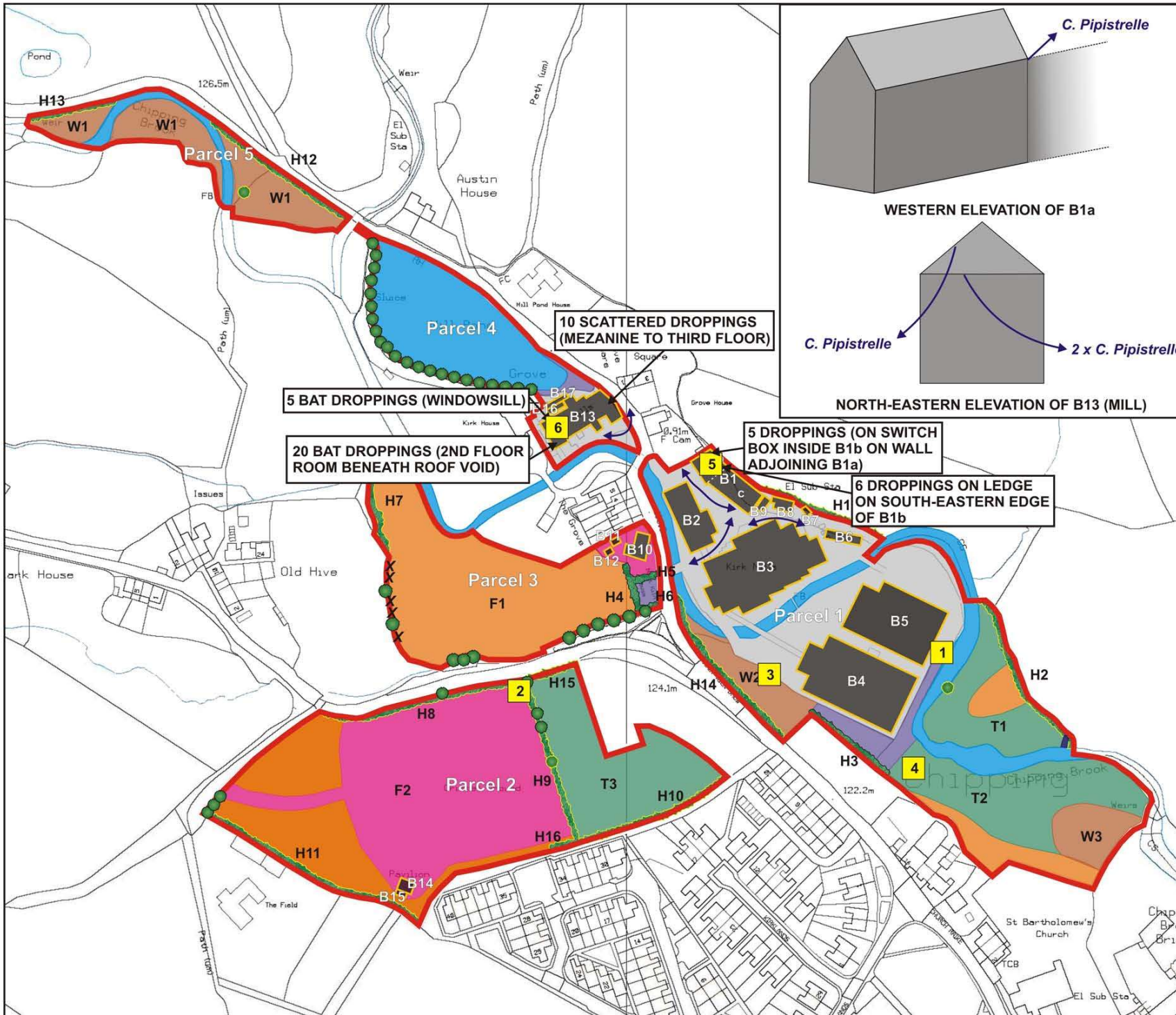







5161: CHIPPING,
NEAR PRESTON

PLAN ECO6:
BAT ACTIVITY RESULTS
APRIL 2013

PLAN ECO7

Bat Survey Results 25th June 2013



- KEY:**
-  STUDY AREA
 -  BUILDING
 -  TREE WITH POTENTIAL TO SUPPORT ROOSTING BATS
 -  BAT FORAGING / COMMUTING ROUTE
 -  OBSERVED BAT EMERGENCE / RE-ENTRANCE



5161: CHIPPING,
NEAR PRESTON





PLAN ECO7:
BAT ACTIVITY RESULTS
25th JUNE 2013

PLAN ECO8

Bat Survey Results 28-29th June 2013



Land of proposed cricket pitch to the south of Chipping Village

- KEY:**
-  STUDY AREA
 -  BUILDING
 -  TREE WITH POTENTIAL TO SUPPORT ROOSTING BATS
 -  AUTOMATED BAT DETECTOR OVERNIGHT LOCATION

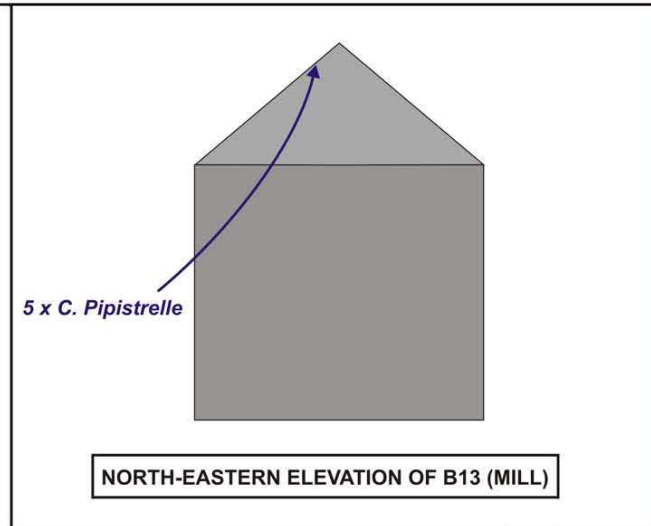
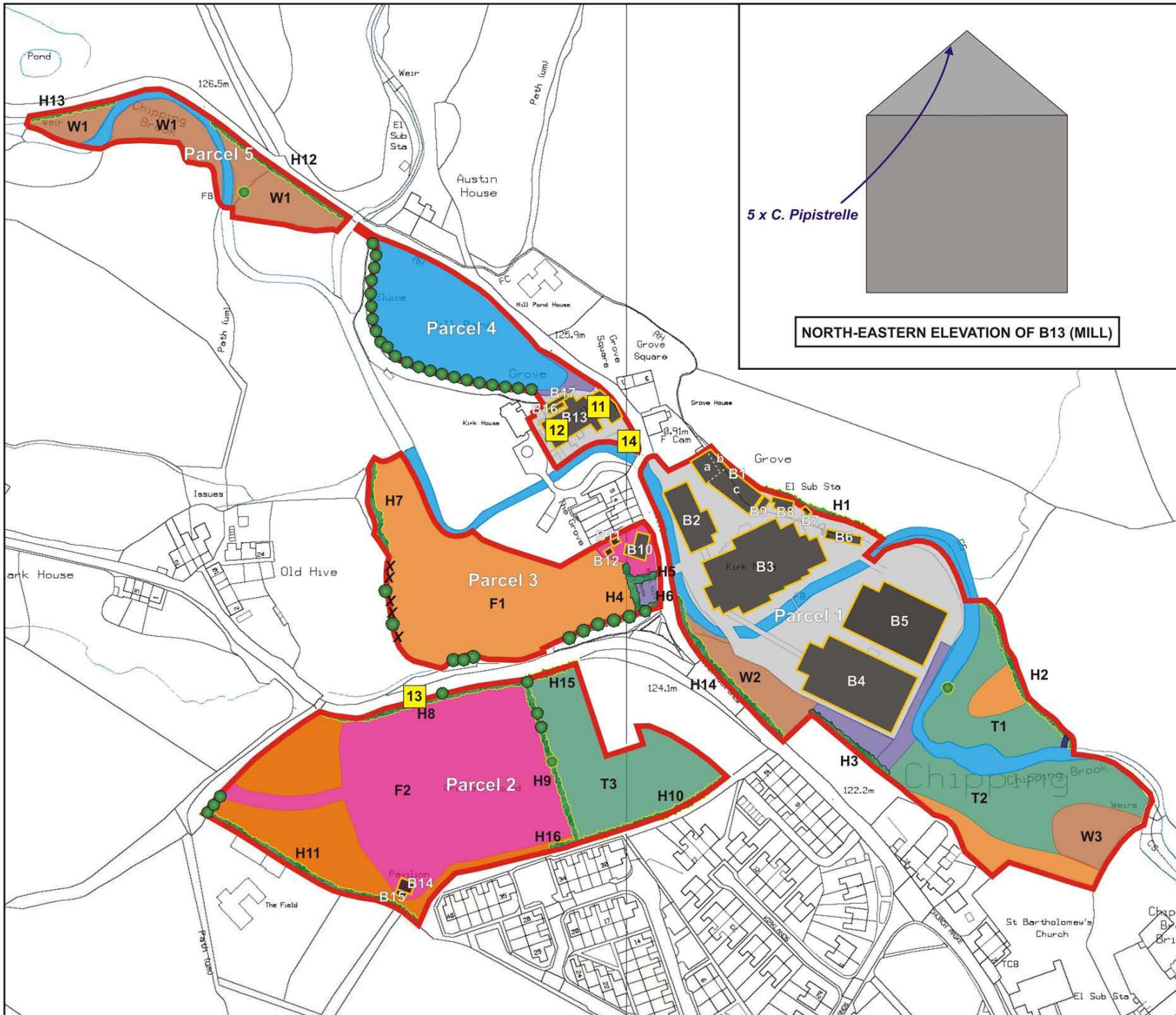







5161: CHIPPING,
NEAR PRESTON

PLAN ECO8:
BAT ACTIVITY RESULTS
28/29th JUNE 2013

PLAN ECO9

Bat Survey Results July 2013



- KEY:**
-  STUDY AREA
 -  BUILDING
 -  TREE WITH POTENTIAL TO SUPPORT ROOSTING BATS
 -  AUTOMATED BAT DETECTOR OVERNIGHT LOCATION
 -  BAT FORAGING / COMMUTING ROUTE



5161: CHIPPING,
NEAR PRESTON

PLAN ECO9:
BAT ACTIVITY RESULTS
JULY 2013

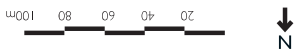
APPENDICES

APPENDIX 1

Masterplan



CHIPPING
PROJECT
ILLUSTRATIVE MASTERPLAN
DRAWING
1:2000 @ A1
SCALE
660/100
DWG. NO.
REV. -
DATE 23 August 2013
(CLM Source File: 660_Chipping_ILMIP_200_130823)





660/202



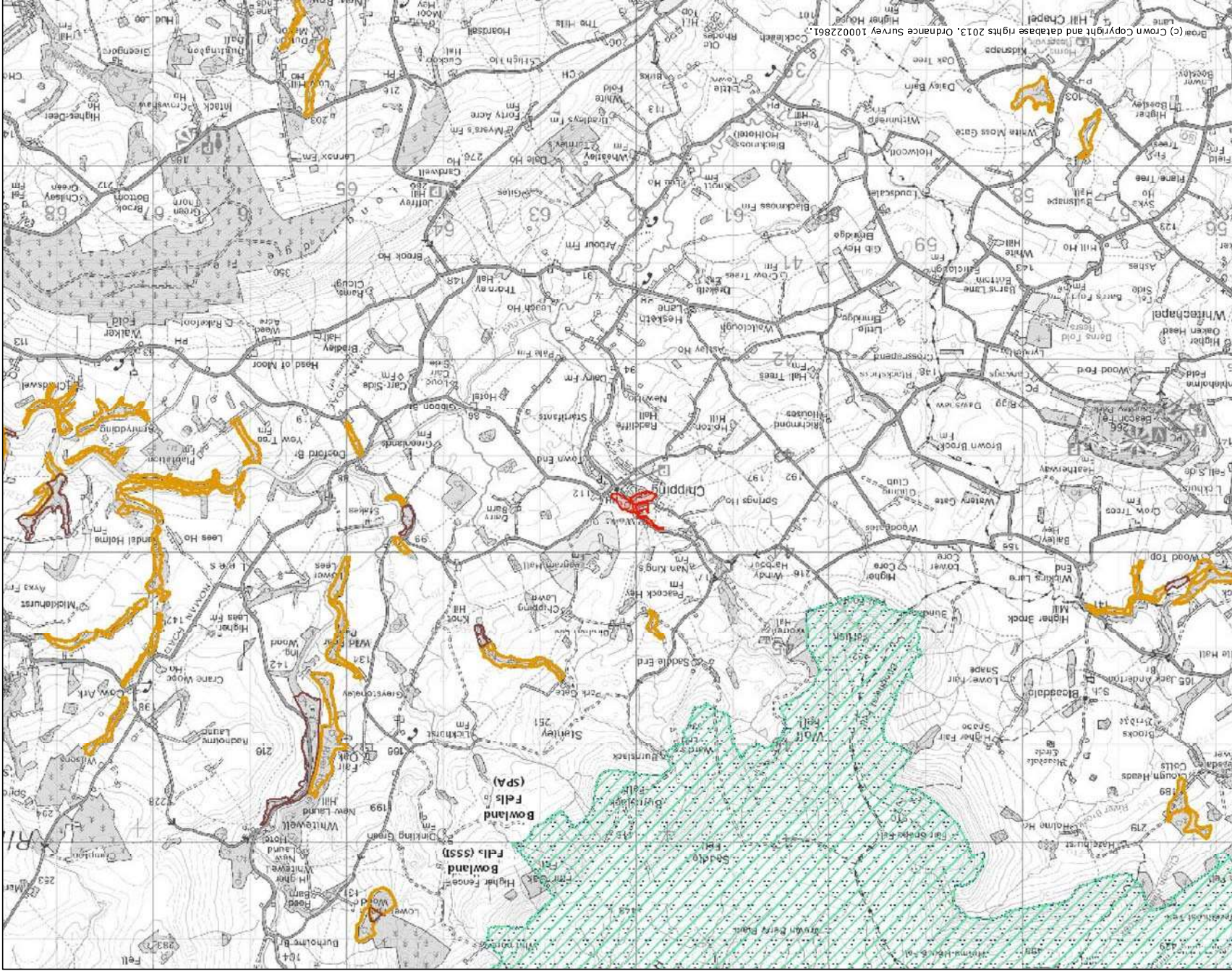
660/201

- Hedges
- Water features within spa gardens
- Rock garden areas within spa gardens
- Ornamental planting
- Sets with grass spacers
- Grass
- Existing trees retained
- Structural woodland planting
- Car park planting and trees
- Feature trees
- Timber seating elements
- Bycycle stands
- Existing in situ concrete (Trailhead car park)
- Tarmac access road
- Self-binding gravel
- Turbule sandstone flags
- Turbule sandstone setts

APPENDIX 2

Information Downloaded From MAGIC

Chipping, Lancashire (MAGIC Map)



- Legend**
- Local Nature Reserves (England)
 - Ramsar Sites (England)
 - Sites of Special Scientific Interest (England)
 - Special Areas of Conservation (England)
 - Special Protection Areas (England)
 - Ancient and Semi-Natural Woodland
 - Ancient Replanted Woodland

Projection = OSGB36
 xmin = 352100
 xmax = 372300
 ymin = 438200
 ymax = 448300
 Map produced by MAGIC on 4 September, 2013.
 Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

APPENDIX 3

Schwegler 1FF Bat Box Specification

Bat Boxes

Schwegler bat boxes are made from 'woodcrete' and have the highest rates of occupation of all types of box.

The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.

Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminium nails.



1FF Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)

Width: 27cm

Height: 43cm

Weight: 8.3kg

APPENDIX 4

Suitable Examples of Bat Boxes

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.



1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

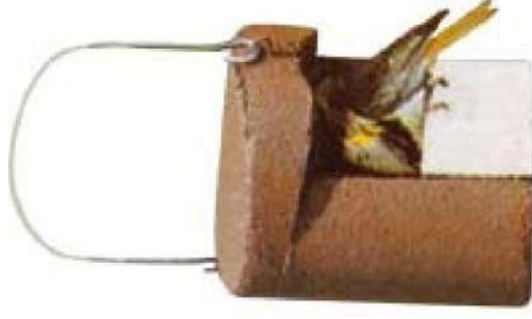
Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts.

2H Bird Box

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and **black redstarts**.

Best sited on the walls of buildings with the entrance on one side.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.



2M Bird Box

A free-hanging box offering greater protection from predators.

Supplied complete with hanger which loops and fastens around a branch.

With standard general-purpose 32mm diameter entrance hole.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

