



**Ecological Mitigation and Enhancement Strategy**

**Report Prepared on behalf of: Manju Dave**

**For the site of: 31 Astons Road, Moor Park, Northwood, Rickmansworth,  
Middlesex HA6 2LB**

17<sup>th</sup> May 2018

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# Ecological Mitigation and Enhancement Strategy

## 1.0 The Scope and Satisfying the 'Three Tests'

The scope of this report is to provide an ecological mitigation and enhancement plan for bats at the site of 31 Astons Road, Moor Park, Northwood, Rickmansworth, Middlesex HA6 2LB. Located at grid reference TQ 0822 9273.

The proposed development involves; *“Roof alterations including part increase in ridge height; part two storey, part single storey rear extension; insertion of rear dormer and creation of lower ground floor level, and insertion of raised terrace and balcony to rear”* (Planning reference: 18/0681/FUL). The existing site plan and proposed site plan are provided as Figures 1 and 2 below.

Figure 1: Existing site plan

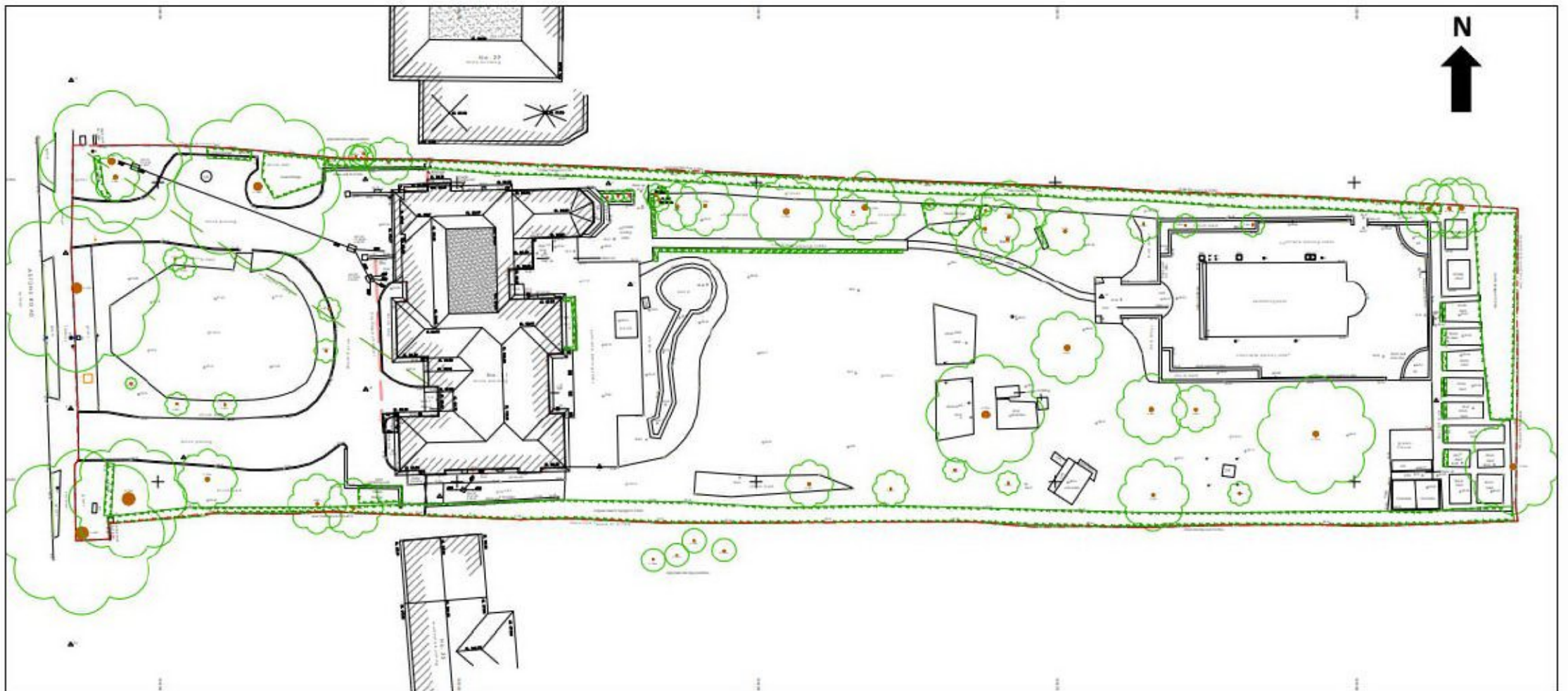
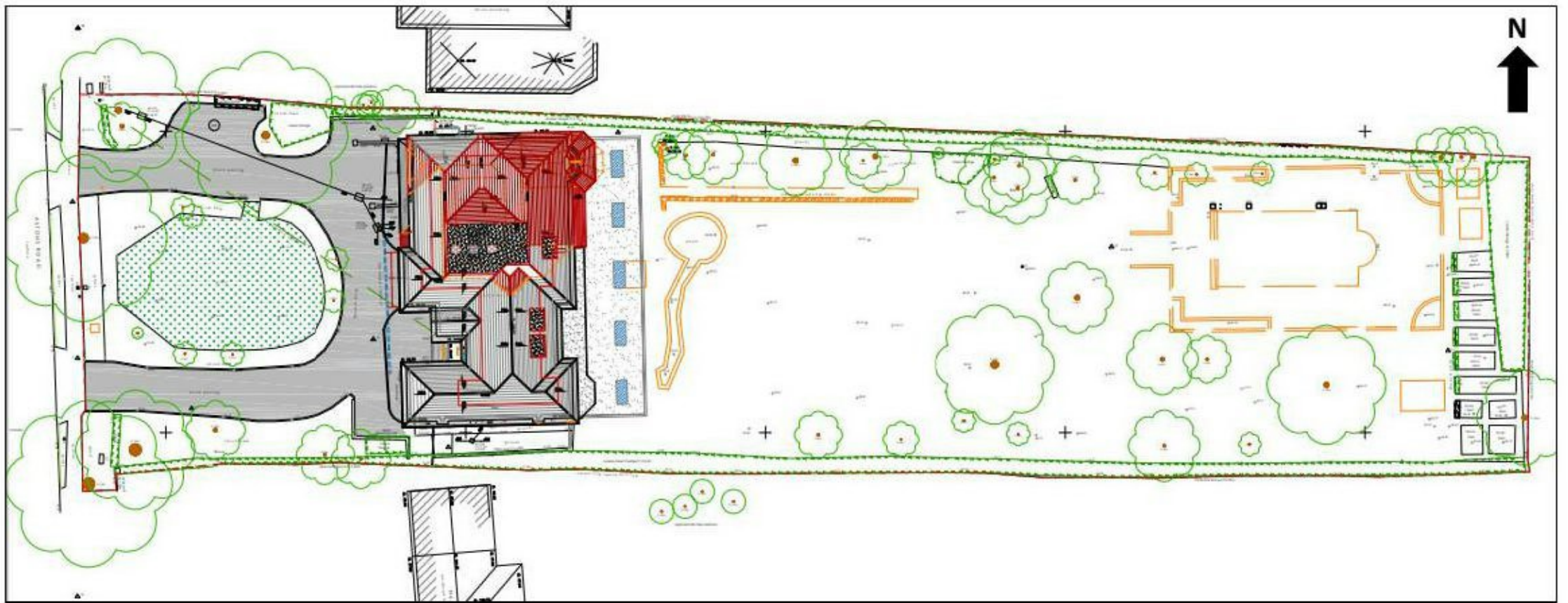


Figure 2: Proposed site plan



This strategy provides ecological mitigation and enhancements to the site to assist with the progression of the planning application, prior to the commencement of roost characterisation bat surveys to be completed in summer 2018. This is an iterative document and will be superseded by the Method Statement for the European Protected Species Licence application that will be submitted to Natural England once planning permission has been granted. Works will not commence until the Licence has been granted.

This strategy provides ecological mitigation and enhancements for the site based on a 'worst case scenario' that there is a soprano pipistrelle *Pipistrellus pygmaeus* maternity roost present behind the hanging tiles.

#### *Satisfying the 'Three Tests'*

To assist with the progression of the planning application, prior to the commencement of roost characterisation surveys to be completed in the summer of 2018, this document will also cover the 'three tests' that are applied by Natural England when assessing Licence applications.

In determining whether to grant a licence Natural England must apply the requirements of Regulation 53 of the Regulations and, in particular, the three tests set out in sub-paragraphs (2)(e), (9)(a) and (9)(b)6 of the Conservation of Habitats and Species Regulations 2010:

(1) Regulation 53(2)(e) states: a licence can be granted for the purposes of “preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment”.

(2) Regulation 53(9)(a) states: the appropriate authority shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”.

(3) Regulation 53(9)(b) states: the appropriate authority shall not grant a licence unless they are satisfied “that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.”

The need for the proposed development satisfies the first two tests as it is categorised as “an imperative reason of overriding public interest with no satisfactory alternative”.

The following statement characterises the applicants and their needs (personal communication with applicant 17/05/2018):

The applicants are a family, who intend to live in the property indefinitely. In other words, the proposal is not speculatively based and is not an example of development for the sake of property development. The proposed building has been designed to meet the family’s specific long-term needs.

The applicants wish to live in Northwood and are committed to creating a new house of quality which makes an individual contribution to the community.

Therefore, the development will provide a much-needed modern family home. There are no satisfactory alternatives as there are no other sites available within the area.

This mitigation and enhancement plan will satisfy the third test.

## 2.0 Background

A Preliminary Roost Assessment Survey was completed by Arbtech Consulting Ltd on 4<sup>th</sup> October 2017. This survey concluded that the existing dwelling (B1) is a **confirmed bat roost**. Bat droppings were located on the walls under the hanging tiles at the front and side of the property. The hanging tiles provide ideal roosting crevices for species such as common and soprano pipistrelles which are known to use features such as these. The site is within approximately 120m of deciduous woodland which provides key foraging resources for bats.

## 3.0 The Site and Building Description

The total size of the site is approx. 0.1ha. The site consists of a detached residential dwelling with a mature garden to the rear. The building is a large, brick built, two-storey house with a multi hipped roof, with two gable ends at the front (western elevation) and a flat section near the north eastern corner. The southern part of the main roof is steeply pitched, the northern section less so and is likely a later extension. All the roof has clay tiles of an excellent condition including the ridge, with only isolated loose, missing or broken examples around the garage on the western elevation. External chimney stacks are without cracks. There are intact sarking boards under the eaves without gaps. Around the exterior of the building are hung clay tiles, of an average condition with many crooked and loose. This provides crevices of roosting value for some bats. The rest of the exterior is either rendered or brickwork of a good condition. Features suitable for bat use:

- Loose, missing or broken roof tiles around the garage on the western elevation
- Raised hanging tiles

The loft space is continuous throughout the roof, constructed from timber roof joists and sarking boards in an attic style. The sarking is of a universally good condition without holes or gaps. Cobwebs are found across much of the ridge beams at the apices of the space, possibly indicating a lack of recent aerial activity/internal flights by void dwelling bats. One brick gable end has a small square window, letting some light into the loft space. The eaves are closed and terminate with bricks. The floor is carpeted and lagged with insulation.

### *Bat evidence found on site*

Three bat droppings were found on two different window sills on the southern elevation of B1. One was old and grey but the others were fresh and black, indicating a very recent bat presence. Another fresh dropping was found on the garage door on the western elevation. The bat droppings were located beneath hanging tiles, a known roosting habitat of crevice dwelling bats. The presence of droppings beneath them indicate they are being used as bat roosts. The bat dropping on the garage door was not located below hanging tiles, which suggests that it was deposited by a passing bat.

Lacewing wings are scattered in areas of the loft; however, no bat droppings were present therefore these may not be of bat feeding origin.

## **4.0 Designated Sites and Landscape**

There are four statutory designated sites within a 2km radius of the site and these are detailed in Table 1 below.

*Table 1: Designated Sites*

<b>Designated Site Name</b>	<b>Distance from Site (approx.)</b>	<b>Reasons for Notification and integral value</b>
<b>Statutory Sites</b>		
Oxhey Woods Local Nature Reserve (LNR)	~1740m north-east	Local Nature Reserve <i>The woods contain a range of habitats which make it one of the most important woodlands in the county. Within its bounds can be found spring displays of bluebells, anemones and violets plus the unusual wild service tree.</i>
Batchworth Heath Local Nature Reserve	~280m south	Local Nature Reserve <i>Batchworth Heath has an ancient pond, rich wildlife, and a wealth of historic buildings and local history connected to it.</i>

Designated Site Name	Distance from Site (approx.)	Reasons for Notification and integral value
The Withy Beds Local Nature Reserve	~1190m north	Local Nature Reserve <i>'Withy bed' is an old English term used to describe the growing of different species of willow for coppicing and is one of the few remaining wetlands in Hertfordshire. It is particularly important as it supports a wide range of habitats including wet woodland, marsh, drier grassland and open ditches as well as the River Colne. A spider, which has not been reported in Hertfordshire since 1880, has been recorded at The Withy Beds.</i>
Croxley Common Moor Site of Special Scientific Interest (SSSI) and Local Nature Reserve	~1800m north	Site of Special Scientific Interest and Local Nature Reserve <i>Croxley Common Moor is an extensive area of grass heath on freely draining sandy soils of the Colne Gravels adjacent to the River Gade. A variety of soil types, from acidic to fairly basic, supports a rich assemblage of plant species. The grassland types represented here include examples which are uncommon in Britain and others which have been significantly reduced in area nationally through drainage and agricultural change. Towards the western end of the site drainage becomes poor and the grassland grades into marshy areas with tall fen vegetation.</i>

The Magic database shows that the following habitats are present within 2km: deciduous woodland, ancient woodland, National Forest Inventory woodland, traditional orchards, lowland fens, lowland heathland, woodpasture and parkland BAP priority habitat, good quality semi-improved grassland and floodplain grazing marsh. These habitats are likely to be of particular value to bats.

A map showing priority habitats and designated sites in a 2km radius of the site is provided is Figure 3 below:



Figure 3: Locations of designated sites (Magic.gov.uk)

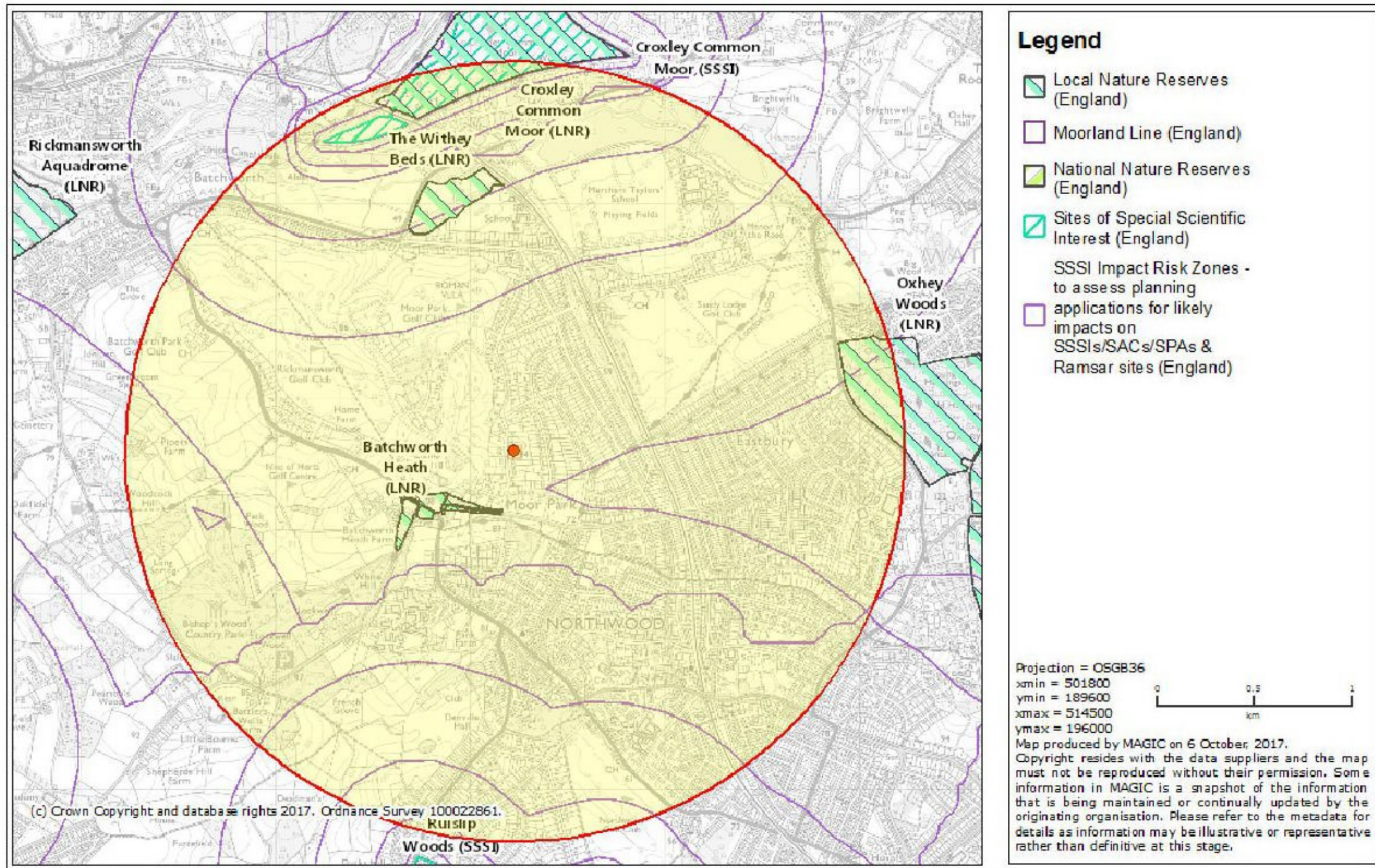
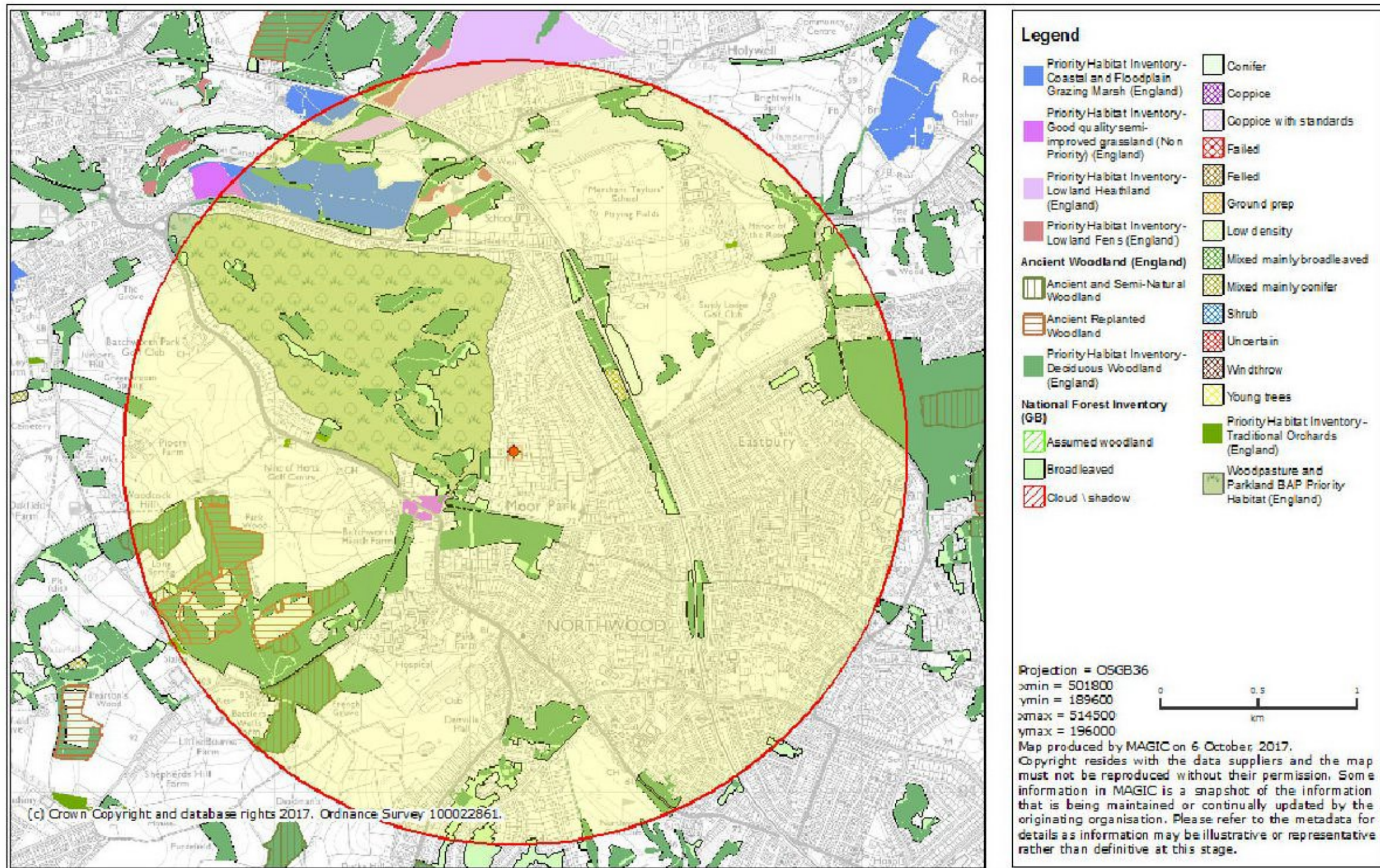


Figure 4: Locations of priority habitats (Magic.gov.uk)



## 5.0 Desk Study

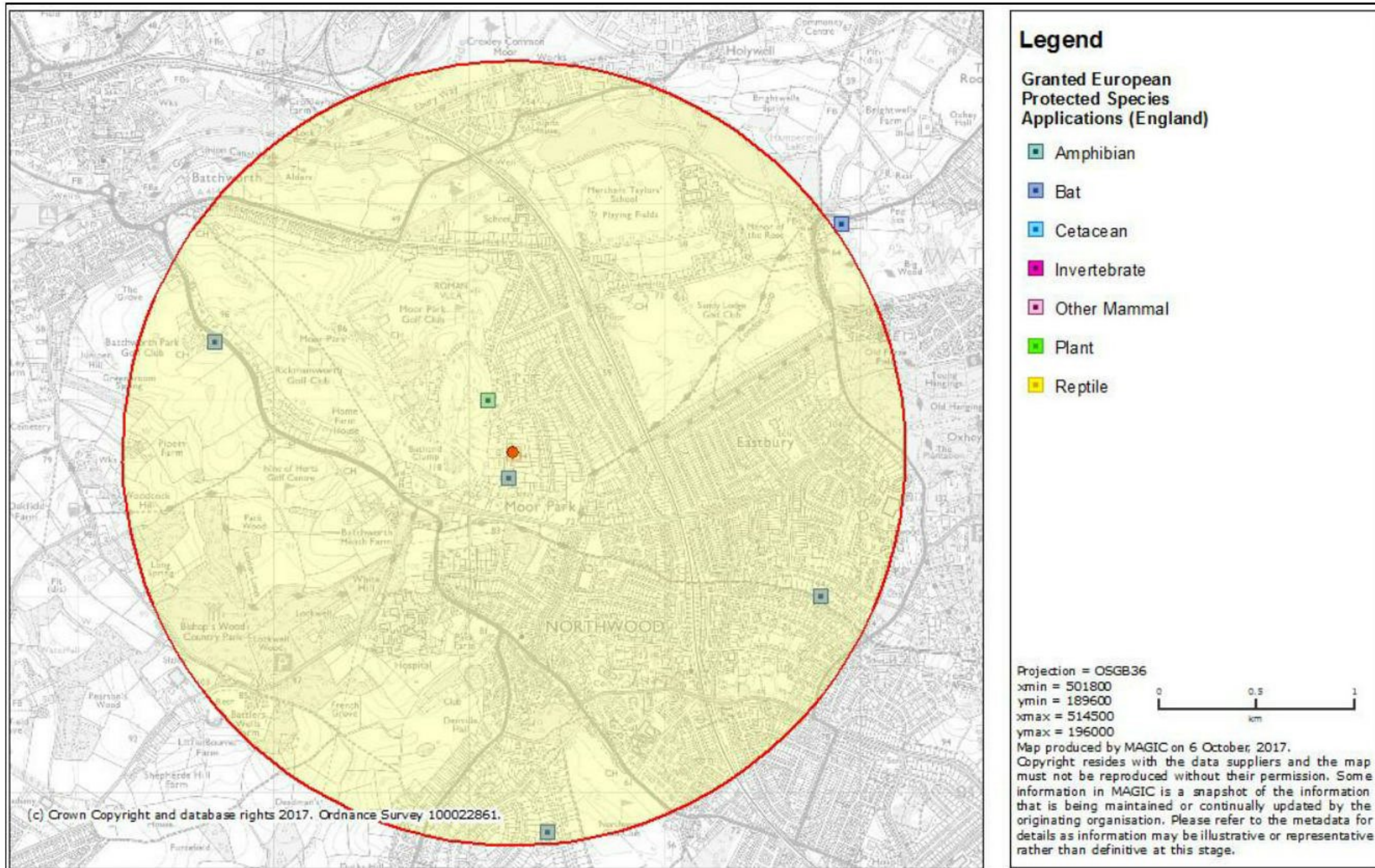
A search for granted European Protected Species Mitigation (EPSM) Licences for bats within a 2km radius of the site was conducted using the Magic Maps ([magicmaps.gov.uk](http://magicmaps.gov.uk)) database. The results are shown in Table 2 and Figure 5 below.

Table 2: Granted EPSM Licences

Case reference of granted application	Approx. distance from site	Bat Species Effected	Licence Start Date:	Licence End Date:	Impacts allowed by licence
2015-18526-EPS-MIT	~130m south	Soprano pipistrelle	18/01/2016	17/01/2021	destruction of a resting place
014-4056-EPS-MIT	~1630m north-west	Soprano pipistrelle, common pipistrelle	24/11/2014	31/03/2020	damage of breeding site
2015-15054-EPS-MIT	~1760m south-east	Soprano pipistrelle, common pipistrelle, brown long-eared	07/10/2015	24/12/2017	destruction of a resting place
2016-23261-EPS-MIT	~1940m south	common pipistrelle	01/09/2016	31/08/2021	destruction of a resting place

The EPSM licences in the surrounding area demonstrate that there are three common bat species (soprano pipistrelle *Pipistrellus pygmaeus*, common pipistrelle *Pipistrellus pygmaeus* and brown long-eared bat *Plecotus auritus*) that have undergone roost disturbance or destruction within 2km of the site. A nearby soprano pipistrelle roost was destroyed in 2016. The destruction of a nearby roost within approximately 130m of the site increases the likelihood of this species roosting in this building.

Figure 5: Locations of granted EPSM Licences (Magic.gov.uk)



## 6.0 The Mitigation and Enhancement Plan

Table 3 below details the mitigation and enhancements of the site for bats, to be undertaken in year 1. Table 4 below details the post-development monitoring and maintenance, to be undertaken in years 2-5.

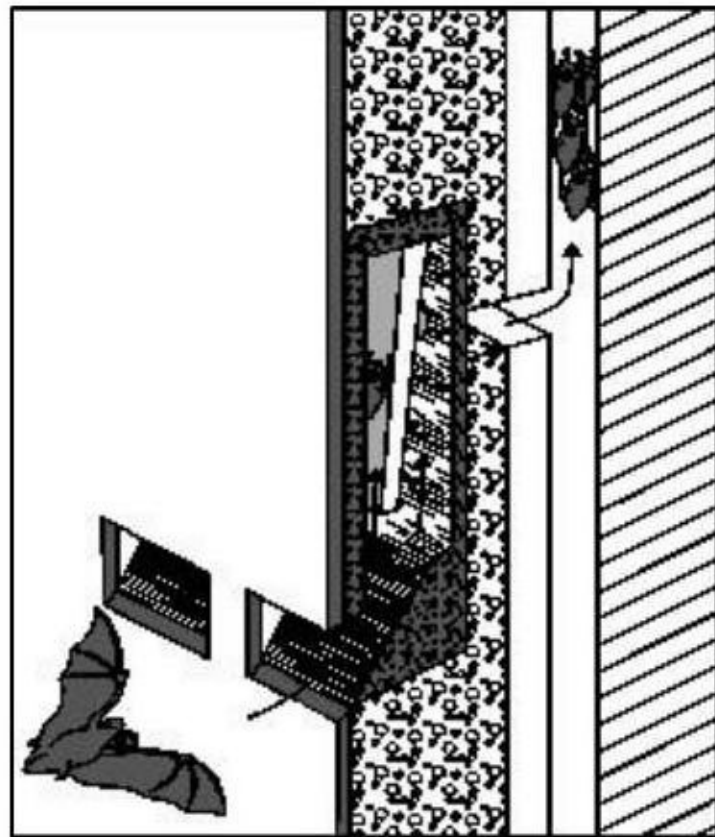
Table 3: Mitigation, Capital Works and Enhancements in Year 1

Work	Specification
Compliance with Legislation	<p>Works to the existing dwelling (B1) will be completed once the roost characterisation surveys have been undertaken, planning permission is granted, and the EPS Mitigation Licence has been granted by Natural England.</p> <p>Works will be completed in accordance with the Work Schedule and Method Statement submitted to Natural England as part of the licence application. Any deviation from the Work Schedule and/or Method Statement will require a modification request to be submitted to Natural England.</p>
Bat Mitigation and Compensation	<p>Ecological supervision will be completed by the Named Ecologist on the Licence or their Accredited Agent.</p> <p><i>Timing of works</i></p> <p>Under the ‘worst case scenario’ that a soprano pipistrelle maternity roost is present in the building the works will occur between October and April when the maternity colony is not present (in accordance with the Bat Mitigation Guidelines (2004)).</p> <p><i>Provision of temporary replacement roosts while the works are being undertaken</i></p> <p>Bat boxes on trees including maternity bat boxes in case the works run into the following years’ maternity period (1<sup>st</sup> May onwards).</p> <ul style="list-style-type: none"> <li>• Prior to the commencement of works on site a Schwegler 2FN bat box will be erected on retained tree in the rear garden (see Appendix 1 for suggested location of bat box). These bat boxes are ideal because their design ensures that they are draft proof making them suitable as winter bat boxes.</li> <li>• A suitable maternity roost bat box for soprano pipistrelles i.e. Schwegler 1FFH colony bat box will also be erected on a retained tree on site prior to the commencement of works.</li> </ul>

*Provision of permanent replacement roosting sites*

Two Schwegler 2FR bat tubes will be inserted into the southern elevation of the dwelling. This will provide permanent roosting provision for the soprano pipistrelle maternity colony on the site. These will be built into the fabric of the building during construction. The tubes will be positioned high on the building, close to the eaves. The bat tubes will be placed side by side and will provide access to the wall cavity as shown in Figure 5 below. See Appendix 1 for location of the bat tubes.

*Figure 6: Schwegler 2FR bat tube providing access to wall cavity*



*Avoidance of killing and injury*

- The known roost locations in the existing dwelling (B1) will be inspected by the Licence Named Ecologist or their Accredited Agent using ladders, torches and an endoscope immediately prior to the commencement of works.
- Any bats found will be carefully captured by hand and transported to the bat box by the Named Ecologist or Accredited Agent.

- A destructive search by soft demolition of the hanging tiles and the raised roof tiles on the sub-roof above the garage will be completed by hand under ecological supervision. Any bats found during the soft demolition will be carefully captured by hand and transported to the bat box by the Named Ecologist or Accredited Agent.
- All contractors working on site will be informed of the procedure to follow should a bat be unexpectedly found during the works i.e. all work must stop and further advice sought from a bat licenced ecologist.
- Any bats accidentally harmed during the works will be carefully placed in a vivarium (see example of a bat vivarium below) and passed to the local bat group carer until which time they can be re-released at the site.



There will be no impact upon the connectivity of the site to the surrounding key foraging areas as the existing tree lined boundaries will be retained.

Bats – Lighting Strategy

Lighting will be controlled across the developed site. Research into the effects of artificial lighting on bats has shown that it can impact upon bat emergence times and lead to a reduced foraging time. As bats are faithful to their roost sites, often returning to the same site

for many years, the impact of lighting on emergence times and in turn reduced foraging times can ultimately result in the roosts being abandoned.

Key areas of the site which are sensitive to artificial lighting are the site boundaries which consist of tree lines of neighbouring properties which provide foraging and commuting routes for bats. The main garden area at the rear of the site also provides a dark area for foraging and commuting.

The lighting on the developed site will be limited to the dwelling only. No lighting will be installed within the garden area, thereby maintaining the existing dark areas within the developed site for bats. No up-lighting will be used on the southern elevation where the entrances to the bat tubes will be located.

Low impact lighting strategies will be adopted from the guidance outlined in the Bat Conservation Trust's 'Bats and Lighting' publications:

[http://www.bats.org.uk/pages/bats\\_and\\_lighting.html](http://www.bats.org.uk/pages/bats_and_lighting.html)

The lighting on the site will:

- Use narrow spectrum light sources to lower the range of species affected by lighting
- Use light sources that emit minimal ultra-violet light
- Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue short wave length content they should be of a warm / neutral colour temperature <4,200 kelvin.
- Not use bare bulbs and any light pointing upwards. The spread of light will be kept in line with or below the horizontal.

Light spill will be reduced via the use of low level lighting used in conjunction with hoods, cowls, louvers and shields. Lights will also be directional to ensure that light is directed to the intended areas only.

External lighting will be on PIR sensors that are sensitive to large objects only (so that they are not triggered by passing bats), and will be set to the shortest time duration to reduce the amount of time the lights are on.



	<p>Wall lights and security lights will be 'dimnable' and set to the lowest light intensity settings. There are several products on the market that allow the control of the light intensity and the duration that the lights are on. All lighting on the developed site will make use of the most up to date technology available.</p> <p>All of the above will ensure that the provision of replacement roosting area for a soprano pipistrelle maternity roost within the developed site, will not be affected by any external lighting ensuring the long-term use of the replacement roosts.</p>
<p>Post-Development inspection</p>	<p>In accordance with the Bat Mitigation Guidelines (2004) maternity roosts are to be monitored for two years following completion of developments.</p> <p>The Schwegler 2FR bat tubes will be inspected by the Named Ecologist of the EPSM Licence or their Accredited Agent for signs of use. A dusk emergence or dawn re-entry survey and daytime inspections of the Schwegler 2FN bat tubes will be completed in June or July 2018, and June or July 2020. In accordance with the latest guidance issued by Natural England stating that post development monitoring of maternity roosts should be staggered i.e. completed in years 1 and 3 following completion of the development.</p> <p>A 'Report of Actions Taken Under Licence' will be returned to Natural England within 14 days of the expiration date of the EPSM Licence in accordance with the terms and conditions of the licence.</p>

Table 5: Five Year Management Plan

Activity	Year 1	Years 2 to 5
Maintenance of bat roosting provision	<p>No maintenance required for the Schwegler 2FR bat tubes as these are built into the fabric of the building.</p> <p>Minimal maintenance is required for the Schwegler 2FN and Schwegler 1FFH colony bat box due to the materials used for their construction (i.e. woodcrete). The only maintenance required is to replace any bat boxes if they are broken or fall down e.g. during storms.</p>	<p>No maintenance required for the Schwegler 2FR bat tubes as these are built into the fabric of the building.</p> <p>Minimal maintenance is required for the Schwegler 2FN and Schwegler 1FFH colony bat box due to the materials used for their construction (i.e. woodcrete). The only maintenance required is to replace any bat boxes if they are broken or fall down e.g. during storms.</p>
Lighting	<p>The location and suitability of the external lighting will be checked by a bat licenced ecologist. Recommendations for improvements will be made where applicable.</p>	<p>Maintain approved lighting levels across the developed site. No changes will be made until advice has been sought from a bat licenced ecologist.</p>
Post-development monitoring	<p>The soprano pipistrelle maternity roost will be monitored for two years following completion of the development – June/July 2018 &amp; June/July 2020.</p> <p>Monitoring will include an inspection of the Schwegler 2FR bat tubes for signs of use by the Licence Named Ecologist or their Accredited Agent, using ladders, torches and an endoscope. This will be followed by an emergence or re-entry survey to monitor the population.</p>	

## **7.0 Limitations**

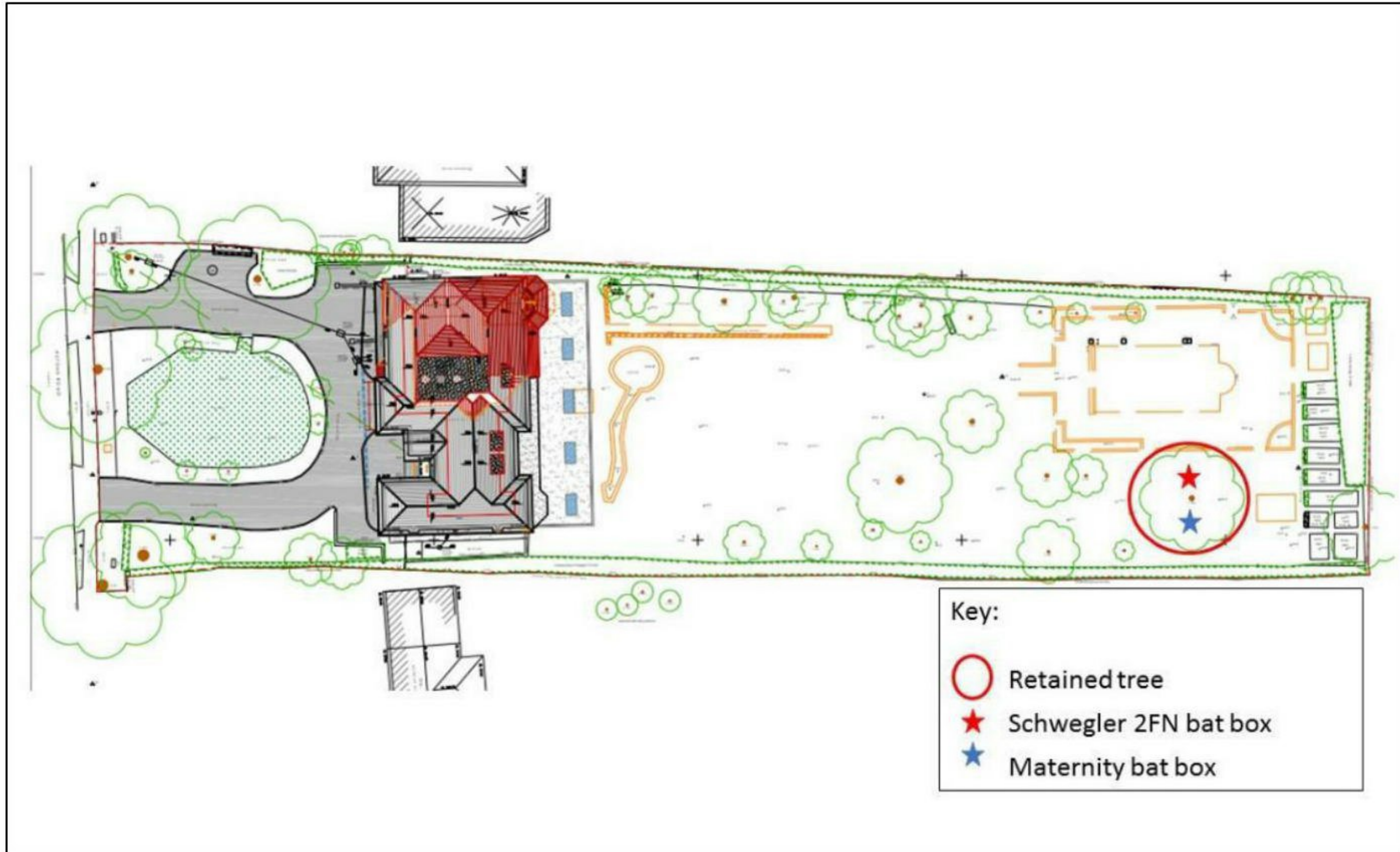
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# Appendix 1 Bat Mitigation and Enhancements

*Temporary roosting provision during development*



*Permanent replacement roosting provision in replacement dwelling*



SOUTH ELEVATION

0 Scale 1:100 5m 10m

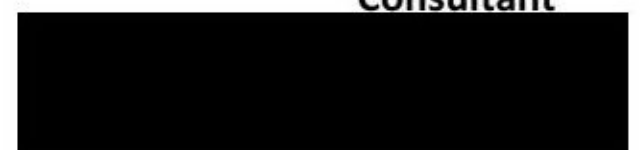
Key:

★ Schwegler 2FR bat tube providing access to cavity wall

BACK PAGE

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