ECOLOGY TECHNICAL NOTE

New Summer House at Chittoe Mill, Bromham, SN15 2EF

Introduction

The applicant has constructed a summer house in the curtilage of Chittoe Mill, which comprises a single-storey timber building approximately 7m long by 3.5m wide, with surrounding timber decking extending the overall footprint to approximately 11m by 8m. The applicant is applying for retrospective planning permission for the summer house (see Appendix B for location).

During the consultation phase Wiltshire Council has raised concerns '*about the fact that the development appears to have been built within the buffer zone for Ancient Woodland (shown on both our internal GIS and Natural England) where new development is typically not acceptable. It is also a country wildlife site and appears to have bat roosts close by and therefore would be sensitive to light spill, noise etc.*'

Malford Environmental Consulting has been commissioned by the applicant to undertake a site visit to review the development in terms of original and current baseline, and to try to address the points raised by Wiltshire Council.

A site inspection was conducted on 16th June 2023. The visit was undertaken by Dr Stephen Dangerfield who has 28 years' professional experience, is a Chartered Environmentalist and full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), and he holds Natural England European Protected Species survey licences for bats (Level 1) and great crested newt.

This Technical Note seeks to provide information on ecology establishing the original and current baseline, provide a commentary of any potential/confirmed ecological impacts, and to set out any recommendations for additional mitigation or enhancement actions as appropriate.

Baseline Conditions

Photographs of the summer house are provided in Appendix A.

Designations

There is no European or national nature conservation designation covering the location of the summer house.

The development site is not located within a Bat Consultation Zone associated with a Bat Special Area of Conservation site.

The location of the summer house is encompassed by one local nature conservation designation (Local Wildlife Site), as follows:

- Chittoe Mill Meadow LWS (Site Ref. ST096.049). Encompasses 0.7ha of damp hay meadow in a forested area running down to the Chittoe Brook with unimproved neutral grassland and interesting fen communities.

This LWS was established following habitat management undertaken by the applicant working in close co-operation with Wiltshire Wildlife Trust and Spye Park Estate. Further comment on the site of the summer house in relation to this designation is provided below under 'habitats'.

Immediately to the west of the summer house and further to the south is the following LWS:

- Prickmoor Wood LWS (Site Ref. ST96.029). Encompasses 27.4ha of mostly conifer plantation, with smaller, semi-natural broadleaved stands on an ancient woodland site.

Further information on the recent history of Prickmoor Wood has been supplied by Bill Ayers who is responsible for management of Prickmoor Wood and other woodland surrounding Chittoe Mill firstly under the auspices of the Forestry Commission and now Spye Park Estate that owns all the woodlands. Information is summarised below under 'habitats' and the full letter is included in Appendix D.

Abutting the eastern boundary of Chittoe Mill curtilage is the following LWS:

- Colwell Copse LWS (Site Ref. ST96.031). Encompasses 2.2ha of ancient woodland site, formerly poplar plantation cleared and planted with hybrid poplars.

A map showing location of Local Wildlife Sites is provided in Appendix B.

Building

The summer house has been built. It comprises a single-storey timber structure approximately 7m long by 3.5 m wide. A timber decking and covered veranda has been erected around the building.

The building has a pitched roof clad in corrugated, grey metal sheets. The veranda has a mono-pitched roof of translucent plastic sheets supported on a timber frame. The building has six small windows (2 windows on each side and 1 window on each end) with 1 small round portal window on the eastern gable end overlooking the garden. All windows are fitted with blinds to minimise light spill.

There are no external gaps and no flyways into the building interior. Four external lights are positioned on each corner of the building pointing inwards towards the decking.

The location of the summer house was chosen in consultation with the Wiltshire Wildlife Trust and Spye Park Estate (Bill Ayers) selecting an area of lowest ecological / conservation value due to landform and previous agricultural land use (see 'habitats' below).

The summer house was constructed by Angus Campbell, a qualified arboriculturalist / tree surgeon, using low impact techniques. The building and decking sits above the existing ground, requiring no change to landform, and is installed using zero impact footings in the form of thin screw piles that do not impact upon tree roots.

The summer house is a benign construction and is generally only used in the daytime as additional office space thereby minimising any potential adverse impacts on nocturnal wildlife.

Habitats

The summer house has been erected in the northwest corner of the Chittoe Mill curtilage on a small mound in an area that was originally used to farm pigs. The land is therefore high in nutrients, which results in vegetation dominated by ruderals including nettle (*Urtica dioica*) and field horsetail (*Equisetum arvense*) with broad-leaved dock (*Rumex obtusifolius*), cleavers (*Galium aperine*), creeping thistle (*Cirsium arvense*) and hogweed (*Heracleum sphondylium*). Shade-loving plants including dog's mercury (*Mercurialis perennis*) and ramsons (*Allium ursinum*) also occur. Bramble (*Rubus fruticosus* agg) was also present and has been routinely cut-back.

No trees have been removed to facilitate the construction of the summer house. The only trees removed have been a few ash (*Fraxinus excelsior*) within the suffering die-back, which were a H&S risk due to the possibility of trees falling within the curtilage of Chittoe Mill.

The land upon which the summer house sits is therefore of lower ecological value, and is not an integral component of the Chittoe Mill Meadow LWS, a designation that was established due to, and covers, the restoration/reinstatement of hay meadow, pond and orchard carried out in conjunction with WWT and Spye Park Estate.

The trees surrounding the summer house, including a mature oak, are all located within the curtilage of Chittoe Mill with the property boundaries delineated by drainage ditches along the western and northern boundaries (see photographs in Appendix A). The trees have been protected through use of zero impact footings. Indeed, a review by Bill Ayers confirms the mature oak has probably benefitted by the construction of the summer house due to the timber frame / screw piles helping to bind the mound together, which has resulted in the oak tree looking healthier than before.

The adjacent Prickmoor Wood is located immediately west of the drainage ditch delineating the boundary of Chittoe Mill. This woodland is designated as 'Ancient Replanted Woodland' and as a 'Priority Habitat – Deciduous Woodland' (see Appendix B for plans).

The history of the woodland is well documented. The woodland was felled in 1915 to support the war effort, and then remained largely low scrub until the 1980s when management was taken over by the Forestry Commission. The woodland was replanted with hybrid black poplar (*Populus* x *canadensis)* trees as a commercial crop, which have been interspersed with mainly self-set ash (*Fraxinus excelsior*) trees, much suffering die-back, with understorey shrubs including elm (*Ulmus* sp) and hazel (*Corylus avellana*).

The summer house is located outside the woodland, with the building being 10m from the nearest tree, which is a hybrid black poplar.

Wildlife

The summer house has been constructed. However, given the location of the summer house and documented original habitat; the construction method (including zero-impact footings); and the fact that the building was sited and erected by a qualified arboriculturalist under the guidance of both Wiltshire Wildlife Trust and Spye Park Estate it can be stated with a high degree of certainty that no wildlife was adversely impacted by the building.

The mature oak located within the curtilage of Chittoe Mill and sitting adjacent to the summer house does support some potential bat roosting features in the form of a split and crack. However, these are located well above the roof of the summer house, and therefore are not affected.

The hybrid black poplar and ash trees within the adjacent Prickmoor Wood do not support any potential bat roosting features given their age, structure and lack of roosting features such as holes, cracks, fissures etc.

Bats are likely to forage within and along the woodland edge habitat, including along the northern boundary stream.

Discussion

The summer house is located on an area of the Chittoe Mill that is of low ecological value previously being used to rear pigs resulting in a mound of high-nutrient land supporting ruderal vegetation. This land does not form an integral part of the Chittoe Mill Meadow LWS, and the placement of the building over this land is a negligible impact.

The summer house is located outside Prickmoor Wood LWS, being 10m away from the nearest tree, which although categorised as 'ancient replanted woodland' and priority habitat – deciduous woodland' is dominated by non-native, hybrid black poplar trees that were planted in the 1980s as a commercial crop. The habitat in the location of the summer house did not form an integral part or contribute to the functioning of the woodland before the summer house was built.

The location, design and construction of the summer house is very low impact using building techniques to sit the building above the land on zero-impact footings that have had no adverse impact on adjacent trees or Prickmoor Wood. As such there are no predicted direct, physical impacts on the adjacent woodland with mitigation embedded within the scheme design to avoid sensitive habitats and protect all trees / woodland (see Appendix C).

The building design and use is benign and low impact, and there are no predicted significant indirect (environmental) impacts on the adjacent woodland and associated wildlife including foraging/commuting bats.

Nevertheless, in consultation with the applicant recommendations to further reduce and completely minimise the potential for adverse impact on bats associated with lighting /disturbance have been agreed and are set out below.

Finally, features to provide additional roosting habitat for bats as an enhancement are also defined below.

Recommended Further Mitigation and Enhancement

External lighting

There are currently four external lights on the outside of the summer house, with one light located on each corner of the building. Although these point inwards towards the decking and are not considered to have a significant adverse effect on the ability for wildlife to forage/commute along the woodland edge / stream, the applicant has agreed to remove all external lights from the summer house ensuring darkness is always maintained.

Veranda cover

The current cover of the veranda is translucent plastic. Although the veranda is set back form the woodland edge and no significant lighting issues are predicted, the applicant has agreed to replace the cover with an opaque material ensuring upward light spill is always avoided.

Bat boxes

To provide an enhanmcement for bats given the general lack of roosting features associated with trees within Prickmoor Wood, the applicant has agreed to install five general purpose bat boxes on suitable trees within or on the edge of Chittoe Mill land-holding or within Prickmoor Wood with agreement from Spye Park Estate.

The bat boxes will be installed under the supervision of a suitably qualified bat ecologist, as far above the ground as possible (minimum 3m above ground level) and orientated in a southerly-facing direction to receive warmth.

Clear lines of flight to the bat box entrances will be maintained at all times.

Various bat boxes are available and can be viewed on-line (e.g. www.nhbs.com or www.wildcare.co.uk), with a Schwegler 1FF, Schwegler 2FF and Beaumaris bat box shown here. One of these or an equivalent should be used.







Yours sincerely

Dr Stephen Dangerfield CEnv MCIEEM FCIWEM
Director

21 June 2023

Appendix A Site Photographs



Summer house showing east and south facing elevations (left) and west and south facing elevations (right). Building sitting above ground using zero-impact screw pile footings. All windows fitted with blinds



Ruderal vegetation, dominated by nettle and horsetail, upon which summer house constructed (left) with vegetation beginning to grow up through decking veranda (right)



Boundary between Chittoe Mill and Prickmoor Wood delineated by a small drainage channel, with trees of Prickmoor Wood dominated by hybrid black polar and self-set ash with hazel/elm understorey. Summer house is set 10m back from nearest Prickmooor Wood tree



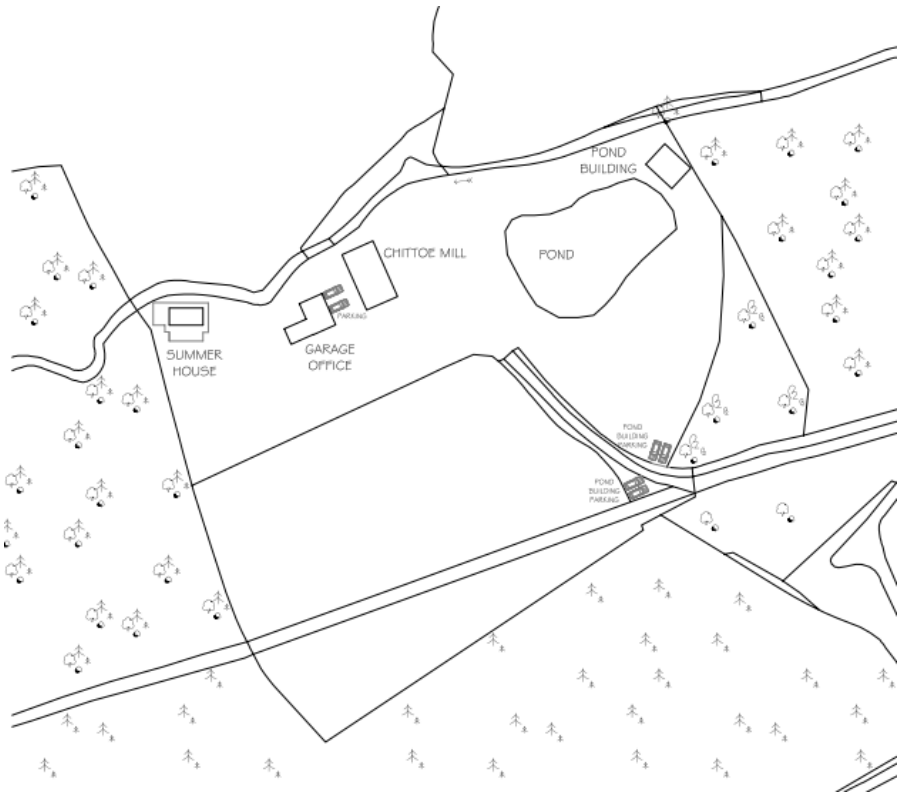
Potential bat roosting features associated with adjacent oak tree located above height of roof of summer house. Additional agreed mitigation to remove external lights and replace veranda cover with opaque material provides additional safeguards



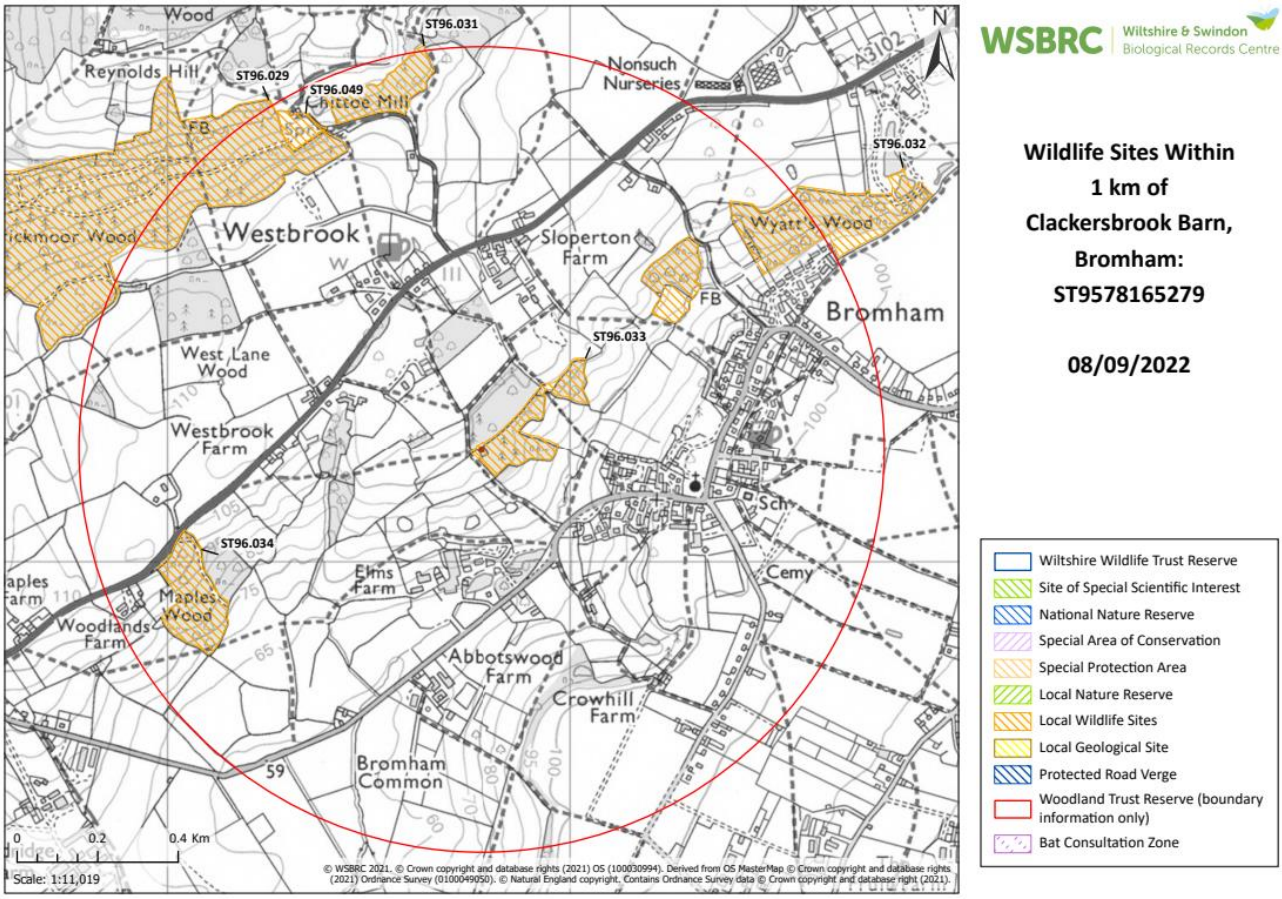
One of four external lights on the summer house, which the applicant has agreed to remove (left) and current translucent cover for veranda that the applicant has agreed to replace with an opaque material (right)

Appendix B Plans

Location Plan



Nature Conservation Designations Plan



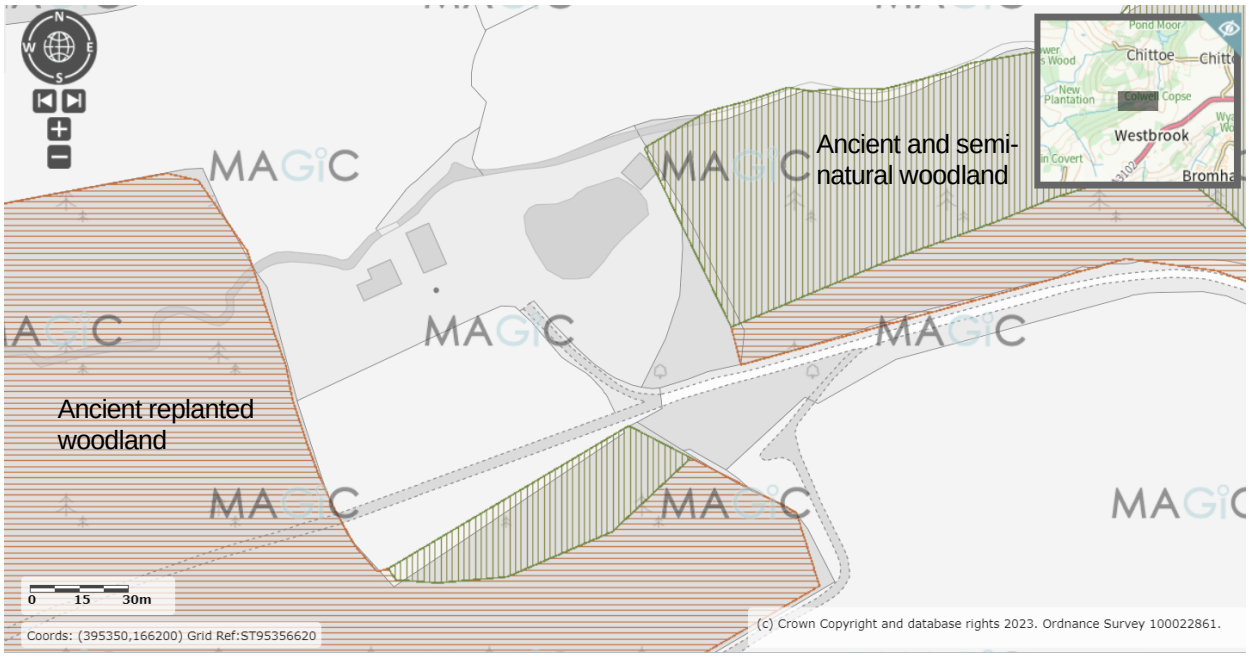
WSBRC | Wiltshire & Swindon Biological Records Centre

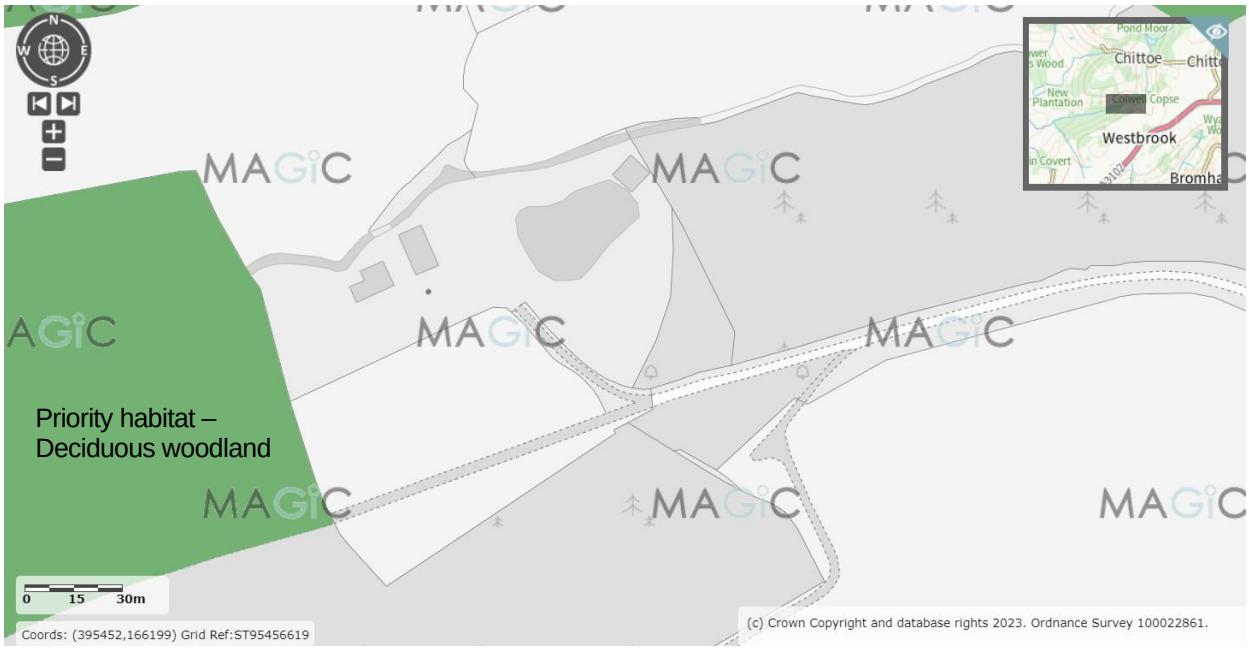
Wildlife Sites Within 1 km of Clackersbrook Barn, Bromham: ST9578165279

08/09/2022

- Wiltshire Wildlife Trust Reserve
- Site of Special Scientific Interest
- National Nature Reserve
- Special Area of Conservation
- Special Protection Area
- Local Nature Reserve
- Local Wildlife Sites
- Local Geological Site
- Protected Road Verge
- Woodland Trust Reserve (boundary information only)
- Bat Consultation Zone

Woodland Designation Plans





Appendix C Ancient Woodland Impact Table

No.	Subject to be assessed	Answer	Mitigation or Compensation
1	Is the site of the ancient woodland the only possible place for this proposal?	The summer house has been built. It is located on a mounded area of land within Chittoe Mill that was previously used to rear pigs. It therefore nutrient-rich and supported ruderal vegetation. The summer house is not within ancient, semi-natural woodland or an ancient woodland site. The woodland habitat adjacent to the summer house, which is separated by a drainage channel, is relatively recent woodland plantation comprising mainly hybrid black poplar with self-set ash and some understorey shrubs. The summer house is therefore physically separated from the woodland, with the building located 10m from the nearest tree.	Mitigation embedded within design to maintain a buffer between the building and woodland and using low/zero-impact construction techniques to protect adjacent trees Applicant agreed to remove external lighting from the building and replace veranda cover with opaque material.
2	What size of ancient woodland will be affected?	The summer house is built outside the woodland. No trees or woodland habitat are directly or indirectly affected by the building.	No mitigation needed.
3	Will an area of woodland be lost?	No woodland will be lost. The summer house is built outside the woodland within an area of ruderal habitat within Chittoe Mill land holding using low impact construction techniques. The summer house is located 10m clear of the nearest tree.	Mitigation embedded within scheme design to protect woodland both physically and environmentally, while additional mitigation will further minimise impacts associated with lighting/disturbance.
4	How well connected is the woodland?	Prickmoor Wood is connected to other woodland blocks encircling Chittoe Mill. The summer house does not reduce or damage the amount of woodland, and does not change / damage existing connectivity with other woodland.	No mitigation needed.
5	Will there be damage to the Root Protection Area of the woodland or individual trees?	No. The summer house has been constructed by a qualified arboriculturalist under guidance of local woodland / wildlife management organisations. The building uses low impact construction techniques – critically employing zero-impact footings in the form of screw piles that do not affect tree roots. The construction is deemed to be of benefit for adjacent mature oak tree due to binding mounded substrate. The summer house is positioned 10m clear of the nearest woodland tree.	Mitigation embedded within building design to ensure protection of tree root zones.

No.	Subject to be assessed	Answer	Mitigation or Compensation
6	Has a survey for protected species been included in the application?	The summer house was sited and built under the guidance of Wiltshire Wildlife Trust and Spye Park Estate woodland manager – thus it can be stated with a high degree of certainty that no wildlife was adversely impacted. A retrospective ecology survey has also been completed. No direct or indirect impacts on the adjacent woodland or associated wildlife are predicted. No further protected species surveys are required or recommended.	Mitigation embedded within design. Additional mitigation agreed to further minimise potential for adverse impacts on wildlife associated with lighting and disturbance.
7	Does the development have the potential to affect the woodland through changes to air quality or to ground water? If so, has an assessment been carried out and appropriate mitigation proposed?	No. The summer house does not have any potential to detrimentally affect the woodland through changes in abiotic factors such as air quality or water quality. The summer house is set back from the woodland edge, and is not considered to have an adverse effect of the structure or function of the adjacent woodland and associated wildlife.	Mitigation embedded within design. Additional mitigation agreed to further minimise potential for adverse impacts on wildlife associated with lighting and disturbance.
8	Will access to the woodland increase?	No. The summer house is located within a private property outside the woodland. The summer house is used for private, residential use as an additional office, and will not result in increased recreational pressure on the adjacent woodland.	No mitigation needed.
9	What is the current function, and planned function, of the land to be lost to development?	The summer house is built outside the woodland within an area of ruderal habitat of low ecological value that was not an integral part of the adjacent woodland or Chittoe Mill Meadow LWS. No woodland habitat is directly or indirectly impacted by the proposed development. The summer house is used for private, residential use as an additional office, and will not result in increased recreational pressure on the adjacent woodland.	No mitigation needed.
10	Does the landscaping scheme include native species, preferably of local provenance?	No trees were removed to facilitate the construction of the summer house. No non-native/ornamental/exotic species will be planted.	No mitigation needed.

No.	Subject to be assessed	Answer	Mitigation or Compensation
11	Conclusion	There are no predicted direct (physical) or indirect (environmental) impacts on the adjacent Prickmoor Wood (ancient replanted woodland) associated with the summer house. The only habitat affected included a small area of nutrient-rich soil within the curtilage of Chittoe Mill that was not integral to the structure and function of Prickmoor Wood LWS or Chittoe Mill Meadow LWS. Mitigation has been embedded within the scheme design to avoid and protect all woodland / trees by providing a minimum 10m stand-off from the woodland trees and using low / zero-impact construction techniques including screw piles to avoid impact on tree root zones. Additional mitigation agreed with the applicant to further minimise potential for adverse impacts on wildlife associated with lighting and disturbance. Actions include removing external lights and replacing veranda cover with an opaque material. Enhancements include installation of five bat boxes on suitable trees.	

Appendix D Information from Bill Ayers

Dear Mark,

You asked me to jot down some background on Prickmore Wood and the area around Chittoe Mill. In brief, I don't think that the summerhouse is in any way detrimental to the adjoining woodland. The adjoining wood on both sides is plantation on ancient woodland site, PAWS.

I was in charge of the woodland to both sides of Chittoe Mill with the Forestry Commission from 1981.

I've have continued to manage the local woodland, now for Spye Park. All the land surrounding Chittoe Mill is owned by Spye.

The history of the woods and meadows around there is well documented. To the west is Prickmore Wood, and to the East a small strip of mixed woodland.

Both were planted with hybrid poplar in the 1980s, a non-native commercial tree used for matches at the time. It was probably not much more than scrub from 1915 (when timber was felled for the war effort), though WW2, and up until the 1980s when it was planted in poplars to be harvested for matchwood. It is possible that for 65 years it wasn't woodland but scrub.

Spye took the woods back from the FC lease in the early 2000s, and it was unchanged since the plantation. There is no evidence of any trees growing between 1915 and 1980.

The poplars are still there, and some ash has self-seeded in between. The ash is now suffering with ash dieback.

After consolation [sic], and a tree falling into your open area around the mill, we agreed between us, Spye and the Fletchers that a few ash had to be felled, particularly 2 or 3 that were already dead and threatening to fall across into Chittoe Mill, particularly the curtilage around your office and the site of the new summerhouse. They were liable to fall, and needed to come down.

I also checked out the summerhouse/office. It is situated on a mound that had little but nettles and horsetails. It's setback from the woodland by about 10-15m, the other side of a ditch. The whole of that back area behind the garages was historically used to farm pigs. There were the remains of three pigsties there, until you built your office in 2003. That far corner is of little conservation value, disturbed and nitrogen rich, due to its historic use. Having said that, parts are slowly repairing themselves higher up, towards the meadow, but the mound was showing no signs of recovery.

Angus Campbell is a tree surgeon and builder who also knows the area, and he built the summerhouse. I think that there was no impact on the chosen that site – it was the area least likely to be of any value to conservation, and the most sensible place. I know Angus wanted to use zero impact foundations – a system of thin screws that push any roots aside, and I agree that was a good decision. The oak tree next to the site would not be impacted, in my view, and if anything, the frame of the summerhouse could hold the mound together, to the benefit of the oak. Returning now to the site, I can see that the oak is healthier than ever, three years later.

I first visited the area as forester for Forestry Commission in the 1980s and 90s. The pond was then filled over, and everything else was brambles and nettles. It had been abandoned in the 1950s, when the track deteriorated, and neglected since. Pre 1950s, the mill had originally been a homestead, part-time mill and smallholding for at least 200 years, probably longer. It was in four quadrants – the mill pond, a meadow, an orchard and an area used for pigs.

It was bought by the then owners of Mill Cottage, and then sold as a single unit to the Fletchers in 1996. Since getting planning permission to restore the mill, they have reinstated the pond, the orchard and the meadow. They worked closely with WWT and I helped them achieve an impressive wildlife area.

The plot behind the garages was used for pigs up until the 1950s, and so is much harder to bring back to a more natural state. It's high in nitrogen, boggy disturbed earth, so nettles and marestails do well.

You ask about flooding. It really doesn't happen along the Westbrook, the topography makes it almost impossible. It's never been known, and the fact that the mill is right there, shows that historically it's extremely unlikely to even rise more than a few inches. The fall in height of the stream over the 100m or so along Chittoe Mill is significant, and so can drain rainfall easily. The stream originates in Spye, from a lake where the level is controlled, less than a mile away, and the catchment area is small. As it originates from a small lake, the flow is pretty constant all year round.

All the best