OFFICERS' MESS BAT HOUSE, VICTORY FIELDS, UPPER RISSINGTON, GLOUCESTERSHIRE, ENGLAND

LINDEN HOMES THAMES VALLEY

BIG Biodiversity Challenge Award Category: Small Scale

Project overview

Linden Homes Thames Valley developed an area of land that was part of RAF Little Rissington, formerly the home of the Red Arrows. Part of this involved the renovation of the old Officer's Mess, of which the entire roof space has been converted into a 3500 m^3 bat house.

What were the biodiversity conditions on site, prior to the enhancement?

The derelict building was in an increasingly deteriorating state and ongoing vandalism had exacerbated this, threatening an eventual collapse and loss of habitat. Evidence of The Officers' Mess supporting satellite and hibernation roosts for Lesser Horseshoe Bat *Rhinolophus hipposideros* and Brown Longeared Bat *Plectous auritus* had been identified by prior surveys. Retention of the existing building was the preferred option as this would have a greater chance of being reoccupied than a replacement building and would comply with Natural England's requirement for minimal disruption by conducting works outside of the hibernation/roosting season.

What were the reasons behind this project ?

The reasoning behind the project was to use the opportunity to attempt to dramatically increase the roosting/maternity population of a rare species by incorporating bespoke species-specific habitat conditions. While the original bat population numbers were relatively low, the intention is to see future roosting populations rising to several thousand with a marked increase in Lesser Horseshoe bats.

While planning conditions had specified retention of some roosting space, Linden's decision to adapt the entire roof space for bat habitation, at the expense of human habitation space, shows a commitment to encouraging the rarer Lesser Horseshow bats that occur in the area.

The Officer's Mess prior to renovation (photo: Aspect Ecology)

The Officer's Mess now completed (photo: S Hughes)

What were the biodiversity measures taken?

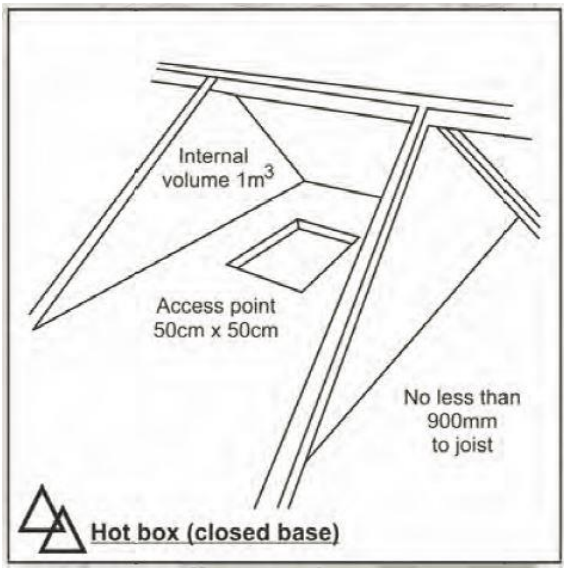
The entire overhaul of the roof space meant that a hazardous habitat for the bats (that would eventually collapse entirely) had been stabilised, but also massively enhanced. It is not clear what volume of the original roof space was available to the bats, though the previous bat population was minimal, but with the work that has been carried out now, we can be certain that the entire volume is available and accessible.

This use of a roof space for a bat habitat is something that could be easily replicated on other developments, along with species-specific roosting that targets threatened or endangered bat species. The use of controlled ventilation within a dedicated roof space, with raised tiles and mock dormer windows for access, is a relatively low cost method that can be installed without a great deal of technical design. It would be especially useful for those that need to retain existing buildings that are either listed or in a conservation area, due to the discrete aesthetics employed. Ongoing maintenance is minimal, but covered by the service charge for the dwellings below. Maintenance access is via a doorway built into the roof's gable end, so can be accessed without disturbance to residents.

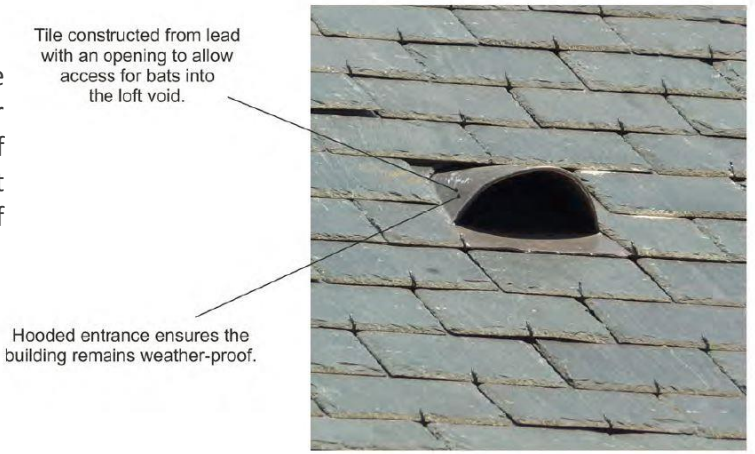
The intention is that initially the previous bat occupants will return, but also that the population will grow, as the favourable conditions increase survival rates for younger bats, thus driving population growth. Contribution to the local BAP is by way of encouraging Lesser Horseshoe bats with a more favourable habitat than they might otherwise find in this area. With the vast space available, it is estimated that the roof could potentially support a colony of many thousands of individuals in the near future.

Further information

The roof renovation was delayed under the instructions of Natural England and the consultant ecologists until it was sure that there would be no disturbance to hibernating or maternity roosting bats. A survey was conducted before dismantling of the roof began, along with a watching brief to provide supervision during the renovations.



Species-specific 'Hot Box' roost (Aspect Ecology)



Access tiles to roof space similar to those used (Aspect Ecology)

Further information continued

The roof tiles were stripped before roof structural works could get underway. The species-specific roost 'hot boxes' were installed (for Lesser Horseshoe and Long Eared Brown bats) with integrated bat tubes for crevice dwelling species such as pipistrelles. The mock dormer access and roof tile access points were then installed before the roof was re-tiled.

Surveys will be conducted by the ecologist at the 1 year and 2 year marks subsequent to occupation, to compare against the baseline survey to establish what the increase in habitation will be.

For the site team, it was an opportunity to be a part of an exceptional biodiversity installation. The site manager showed great pride in the project and went on to install other biodiversity enhancements throughout the site, including a 'hedgehog highway' to link all the development's gardens to provide foraging space.

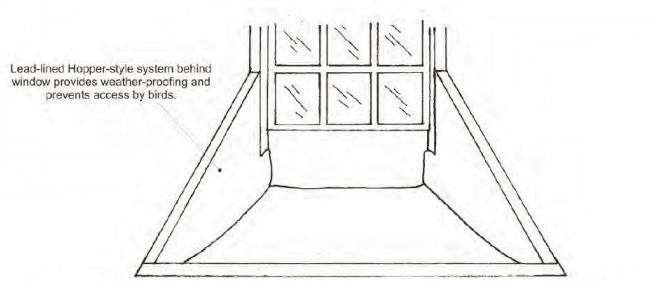
The project's immediate objectives were to preserve bat roosting space and this has been achieved. The project has gone over and beyond this objective by allowing for the potential to increase the population of a threatened bat species, and to increase local bats roosting in the roof, to several thousand over the coming years.

Project Team

- Construction Director: Andy Morris
- Site Manager: Darren O'Byrne
- Engineering Manager: Alex Pook

What was the motivation for carrying out the enhancement?

The development was viewed as a rare opportunity to make a substantial contribution to the area's biodiversity. It is not often that we as an organisation can target a specific endangered species, especially in such a way that provides a habitat to encourage and accommodate a potentially huge increase in their population in the future. While there was an associated decrease in habitable accommodation for prospective purchasers of the properties, we felt that on this occasion it was far outweighed by the benefits that this opportunity could bring to the local and wider ecology of the area.



Gap left at base of window to provide entrance for bats (specifically Lesser Horseshoes) into loft void via a Hopper-style system and maintain access to existing roosts whilst ensuring the building is weather-proof and the risk of birds entering the loft void is minimal.

Innovative 'Mock dormer' window access for Lesser Horseshoe bats (Aspect Ecology)

Mock dormer windows allowing access to roof roosting (S.Hughes)