Building a new Lesser Horseshoe Bat Roost

Case Study - *How we did it*


Lesser Horseshoe Bat

Background A major education led regeneration programme is underway in Cinderford, Gloucestershire. Programme implementation requires the building of two new replacement Lesser Horseshoe Bat Roosts. The focus of this case study is about the practical experience of designing and building large scale bat roosts. We hope by providing this information freely it will be of assistance for similar projects in the future. For further information contact details are provided at the end of the case study or visit the regeneration pages on the Council website (www.fdean.gov.uk).

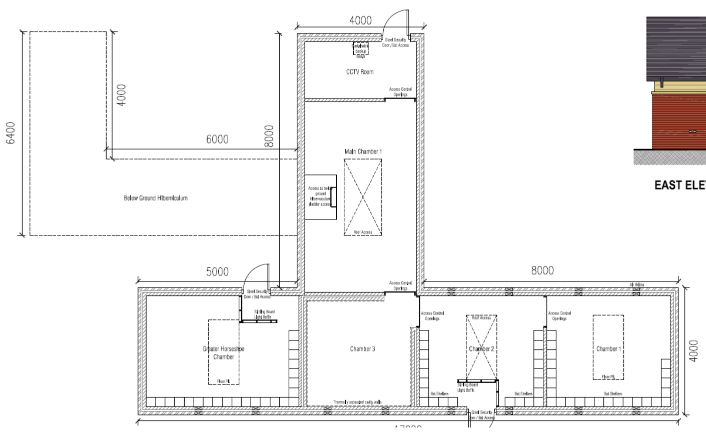
Introduction Planning permission for a new mixed use development required the building of two replacement Lesser Horseshoe Bat (LHB) roosts, which need to have a defined level of use before existing roosts can be closed in the development area. Through a legal agreement (Section 106) the Forest of Dean District Council undertook to build and maintain the new roosts on behalf of the developer. A project team was formed to deliver the new roosts. The team included the project architects, construction design & management, ecology and archaeology advisors as well as members of the regeneration team.

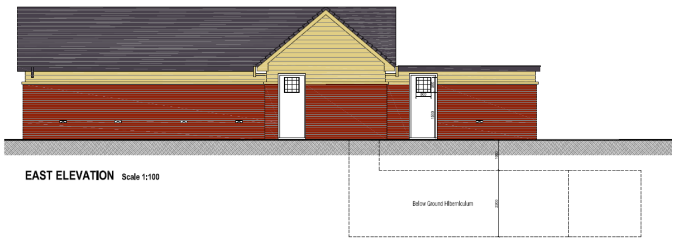

Existing purpose built bat roost

Design and Siting Radio tracking data from an existing nearby roost site together with habitat suitability assessments were used to select locations which were considered to have the best chance of early colonisation. **The 'Lesser Horseshoe Conservation Handbook'** (2008) Schofield, H. provides excellent background to LHB ecology, roost requirements and roost design features. A nearby existing purpose built roost (2007) which supports in the region of 300-400 LHB's also provided a good basis upon which to develop the roost design. The roosts were designed to be 'off grid' having no mains water or electricity. They were orientated to maximise solar radiance.

Two roosts were to be constructed. The first roost (RR1) has a footprint to approximately 50sqm and is located within 250m of known LHB roosts and 600 m of the second roost (planning application reference P1495/12/FUL). The second (RR2) has a footprint of around 100sqm and contains a 'cellar' element of 120m3, as a winter hibernation feature (planning application reference P0153/13/FUL).

Details of the designs can be found by using the above planning references through the Forest of Dean District Council website www.fdean.gov.uk





Construction Following site clearance, construction commenced in July 2014 on RR1 and then RR2. Main construction took until march 2015 with a further 3 months of snagging and amendments. In February 2016 final landscaping was completed and a solar powered battery storage heat source system for the hot boxes was installed. The total cost of construction and landscaping of the two roosts was £216,000 (2014/15).

Key things we might look at differently next time…..

Secondary means of bat access. We were soon advised to make sure the roosts had a secondary flying access for bats in case one became blocked for some reason. We retro fitted these, ideally they should be incorporated into the original design.

Internally the finish was basic with rough rendered walls and unbound rough floor. We found however there were area's where further cost savings on reducing details (such as internal doors) could be made. Generally this low level of finish was 'unusual' for contractors and most probably worth detailing in any tender brief.

We went for a cement board celling with no loft flooring, this meant for monitoring purposes we retro fitted crawler boards to monitor the loft areas. One option would be to do away with a ceiling and floor the loft area instead this would make monitoring easier, but may expose chipboard flooring to moisture.

Controlling airflow and moisture is not straight forward. We want to reduce draughts and heat loss from the roost but control moisture particularly as the floor is unbound and the buildings were constructed in wet conditions. We have used a system where we can open and close gaps in the sofits by screwing sections of plywood into place externally and in this way control air movement. It will take us a little time of trial and error to get the internal conditions right.

We did not install any rainwater goods to reduce cost, damage and potential blockages. A slightly larger overhang of roofing at the eves may be advantageous to move the roof drip line, and subsequent splashes, further away from the brick facing.

Subject to making any water trough 'safe' for bats it may be useful to use rain water to fill a trough of water within the roost for bats.

Monitoring Initially monitoring was undertaken monthly both externally to check the condition of the buildings and internal for evidence of bats. When evidence of bats has been found internal inspections have been reduced to reduce disturbance. Data loggers record temperature and humidity in different locations within each roost.

In August 2015 there was evidence (scattering of 'bat poo', which was DNA tested) of Lesser Horseshoe bats using the larger roost. The external schwegler boxes became used by Pipistrelle bats also in the first season. Monitoring continues and we shall provide updates on progress.


Schwegler 1FF bat box



Second larger roost under construction


Completed second roost

Main Contractors

Apex Architecture

www.apexarchitecture.com

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GSM

Heating • Cooling • Renewable Energy

www.gsmlimited.com

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Yorke Construction

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