Citation

Hampshire **Greywell Tunnel (Basingstoke Canal) SSSI**

Status: Site of Special Scientific Interest (SSSI) Notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: Hampshire County Council, Basingstoke and Dean Borough Council, Hart District Council

National grid reference: SU 708518 – SU 719515 **Area:** 0.6 ha 1.5 ac

Ordnance Survey sheet: 1:50 000: 186 1:25 000: SU 75

Date notified (Under 1949 Act): **Date of last revision:**

Date notified (under 1981 Act): **20.12.85** **Date of last revision:**

Other information

Description and reasons for notification

Greywell Tunnel gives shelter to the largest population of bats of any known site in Britain. Five species hibernate in it from September to April and an unknown number are found there in summer. From a single count of 541 bats (24 January 1985) and knowing from other detailed studies what proportion of the total number of bats that that number may represent, it is estimated that there may be about 2000 bats dependent on the site. The bats depend on the ideal microclimate within the tunnel that developed as a result of a roof fall 52 years ago. Unblocking the tunnel would destroy its use by bats.

Greywell Tunnel was opened in 1794 and carried commercial traffic more or less continuously until February 1914 when the last boat passed through. Even in its heyday the amount of traffic was generally small. In 1932 a substantial roof collapse occurred which prevented the possibility of continued use of the canal in that section, but in fact navigation of the Basingstoke canal had been difficult by 1914. Therefore Greywell Tunnel has remained more or less undisturbed for exactly 70 years, and for the past 52 years, following the collapse, has had a constant internal environment. Greywell Tunnel was 3690 feet long. The western end has collapsed but some 460 foot of tunnel remains accessible before reaching the major blockage. The next 590 feet has collapsed with the tunnel being filled with soft clay. The eastern end consists of 2640 feet of sound tunnel driven through chalk.

Access to the western end is difficult and dangerous, and a detailed survey for bats has not been undertaken. However, it is likely that significant numbers of bats of several species will be using that section in winter and summer, especially since more than 50% of the bats are found in the first 400 feet of the eastern end. The importance of the tunnel for bats was recognised in 1975 and observations in all seasons have been made to the present. The tunnel is a blocked, straight, horizontal canal tunnel with its open east facing entrance lying in a sheltered cutting. Springs originate within the tunnel which provide water flowing slowly to

the east at a constant temperature of about 10°C. Convection air currents develop such that when the external ambient temperature falls below 10°C cold air flows into the tunnel over the warm water and warm air flows out at roof level. The distance this convection current penetrates is related to the temperature differential between the internal and external ambients. Small changes occur throughout the tunnel. At times a substantial 'fog' develops within the tunnel. In summer, with external temperatures substantially about 10°C, warm air flows into the tunnel at roof height and cold air flows out over the water. It is these special environmental conditions that the bats require and which makes the tunnel an outstandingly important site.

During the past 30 years all kinds of sites have been searched that might contain hibernating bat populations. Hundreds of roosts have been found in Britain but most only contain a maximum of less than 10 bats. Fewer than 15 underground sites (caves, mines, cellars, railway tunnels) have maximum number of bats exceeding 100. Examination of all these in early 1985 revealed that the largest number of bats in any one site was 319, whereas 541 bats (40% more) were counted in an incomplete survey of the Greywell Tunnel.

Species present:

Natterer's bat *Myotis nattereri* is by far the most abundant species. These bats specialise in feeding along woodland edges or hedgerows.

Daubenton's bat *Myotis daubentoni* is second most frequent and undoubtedly only a small proportion of these are seen during inspections. These bats prefer to hide in crevices and many of these bats will undoubtedly hibernate in the many holes in the brickwork and in the gap between brick lining and the chalk. This species mostly catches insects emerging from water and will eat most of its food over the canal.

Whiskered bat *Myotis mystacinus* and Brandt's bat *Myotis brandti* are found in small numbers mostly roosting near the entrance. They are rare bats in eastern England that feed in open sheltered areas.

Brown long-eared bats *Plecotus auritus* occur regularly in small numbers. They feed within woodland and around trees.

Other species may occur periodically and more frequent observations would reveal them but frequent visits are incompatible with the need not to disturb bats in hibernation.