Embankment badger barriers – a case study

The Grand Western Canal Country Park and Local Nature Reserve is located in Devon and extends for 11 ¼ miles from the market town of Tiverton to the hamlet of Lowdwells, close to the Somerset border. It is owned by Devon County Council (DCC) and is managed by a small Canal Ranger Service (a manager and two rangers). Opened in 1814, the Canal is kept on a level contour throughout its length through the use of cuttings and embankments. The use of miles of embankments however, has increased the potential for leaks from this clay-lined Canal.

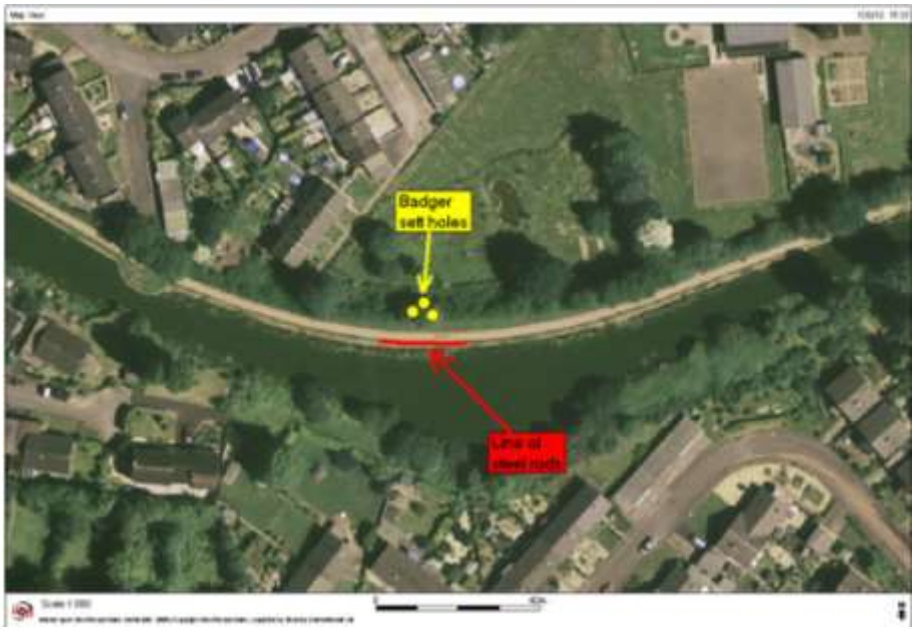
Badger problems

Three years ago, the Canal Ranger Service became aware that some badgers had taken up residence in a canal embankment above a primary school in Tiverton (right). DCC engineers agreed with the Canal Rangers that there was a danger of the badgers excavating through the embankment until they reached the Canal, potentially creating a leak, which could quickly erode, collapse and cause a breach, affecting the town below.

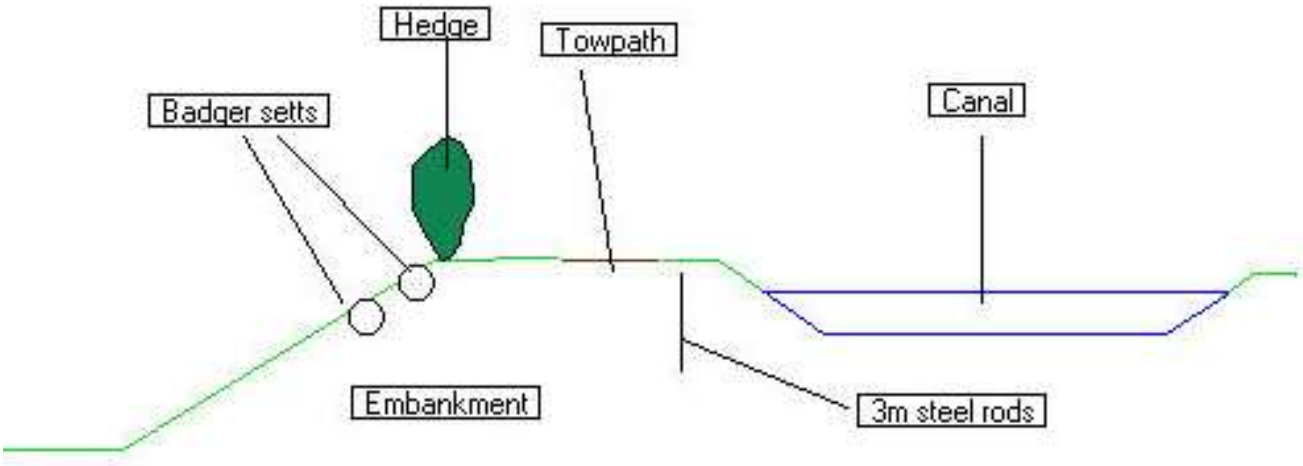
In 2010, an application was made to Natural England (NE) to either have the badgers culled or relocated, but this was refused, as the local NE wildlife officer felt that other options which would enable the badgers to remain had not been fully considered.

As there were no secondary setts known of in the area (a residential area on the edge of town) the badgers could not simply be excluded, and the building of an artificial sett was not thought to be viable due to issues around cost and land availability. One possible solution put forward was to create a barrier along the line of the canal using weld-mesh dropped into a trench dug along the line of the towpath. However in order to dig a sufficiently deep trench without the pressure of the Canal collapsing the trench, it would have to be built unacceptably close to the sett entrances, with a likelihood of collapsing or bisecting tunnels.

The scaffold solution



Eventually following lengthy discussions with DCC's engineers and the NE wildlife officer, a plan was devised to use scaffold poles to build a frame through which 2cm thick, 3m long steel rods would be inserted along the canal bank at a spacing of 7cm, thereby creating an impenetrable barrier to the badgers. Insertion through the 1.5m high frame would ensure that the rods remained at 7cm spacings, even at 3m below ground level. A badger licence for this work was applied for and was received in mid December 2011.



The frame was built by the Canal Ranger Service and they undertook the task of inserting the steel rods, using a hired excavator, in the week before Christmas 2011. The 2.6 tonne excavator was hired along with a hydraulic breaker ('pecker') attachment. This had been adapted for the task of pushing in the rods (rather than breaking up concrete) by having the end of the bit cut square, and a short section of scaffold pole welded on the end to provide a couple of inches of sleeve to retain the end of the rod as it was pushed down.

Before the rods were inserted, a 30cm deep trench was dug so that the ends of the rods could be covered over safely once the work was complete, and so the tops of the rods were just above water level. The line of rods was to extend for 20m, centred above the sett holes. The steel rods were purchased in 6m lengths and then cut in half at a 45 degree angle with an angle grinder, in order to point one end in case it had to be driven through rocky ground.

The process

1. The frame was lifted into place by the excavator (right).
2. It was levelled and then fixed in place using a diagonal scaffold bar fixed to a post driven into the ground on the opposite side of the towpath.

3. One by one the frame tubes were loaded with steel rods and these were pushed in by the excavator (only a few actually needed the hydraulic action of the 'pecker' to hammer them in the required depth) (left).

4. Once all of the frame tubes had been 'filled', the frame was lifted off (below left) and the excavator pushed each of the steel rods the remaining 1.5m into the ground (below right). However, in each case the end rod was left standing 1m proud so that the end tube of the frame could be fitted over it to ensure the 7cm spacing continued.

5. When all 260 steel rods were fully inserted over the 20m length, the trench was filled back in and the area was made good (right).

Results and conclusions

The work took 3 days to complete and went remarkably smoothly. The fact that the ground was not rocky helped enormously, and the wet weather meant that the towpath was quiet so there were few delays to let people pass safely.

One key consideration for anyone considering using this technique is the reach of the excavator relative to the height of the frame. Our 2.6 tonne machine was only just able to lift the frame off the rods and had we used a smaller machine or a taller frame we would have had some serious problems!

The cost of the work was approximately £2000. The steel rods cost £1500, the hire of the excavator and pecker, plus the alterations to the pecker bit cost £450 and the scaffold clips cost £50 (we already had the scaffold poles). Had we used contractors the cost would probably have several thousand pounds more. A local resident, who regularly monitors the badger's activity in their garden, has reported they seem to be all present and well. If at some point in the future the badgers excavate new tunnels further along the embankment, the Canal Rangers have kept the frame intact and would be able to extend the line of steel rods as necessary.

Whilst there has been some local consternation at the cost in money and labour of undertaking these works (many locals would prefer to see the badgers culled or relocated – particularly those whose gardens are being regularly dug up!), DCC has a strong case is arguing it had no option but to act within the law, and to obtain the necessary Natural England support and consents in order to carry out the works that were necessary to safeguard the Canal and the town below.

Grand Western Canal COUNTRY PARK LOCAL NATURE RESERVE

Devon County Council

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February 2012