



Advisory Visit

River Sherbourne, Coventry

June 2016



1.0 Introduction

This report is the output of a site visit undertaken by Tim Jacklin and Gareth Pedley of the Wild Trout Trust to the River Sherbourne, Coventry, on 10th June, 2016. Comments in this report are based on observations on the day of the site visit and discussions with Tim Precious, Anna Squires and James Harris of Warwickshire Wildlife Trust; Mark Yates of Coventry City Council and Chris Farmer of the Environment Agency.

Normal convention is applied throughout the report with respect to bank identification, i.e. the banks are designated left hand bank (LHB) or right hand bank (RHB) whilst looking downstream.

2.0 Catchment Overview

The River Sherbourne is located in the City of Coventry, West Midlands, rising to the north west of the City and flowing east and south to join the River Sowe (Figure 1) in the Warwickshire Avon catchment. The Sherbourne is designated as a heavily modified waterbody under the Water Framework Directive (waterbody ID GB109054044620); it has a length of 18km and a predominantly urban catchment area of 48 km². The Sherbourne is classified overall as 'poor' under both the 2009 and 2015 WFD waterbody classification cycle, being 'poor' for invertebrates and macrophytes/phytobenthos in both years, but 'poor' and 'good' for fish respectively.

The Sherbourne falls within the scope of a number of project initiatives, including the Coventry Water Vole Project (www.warwickshirewildlifetrust.org.uk/coventry-water-vole-project) and the Go with the Flow Project which involves the local community in hands-on, practical activities to improve the environment (<http://www.warwickshirewildlifetrust.org.uk/gwtf>). The Guphill Brook, a Sherbourne tributary, has been the subject of a river restoration project led by Warwickshire Wildlife Trust, which has included advice and practical demonstration from the Wild Trout Trust.

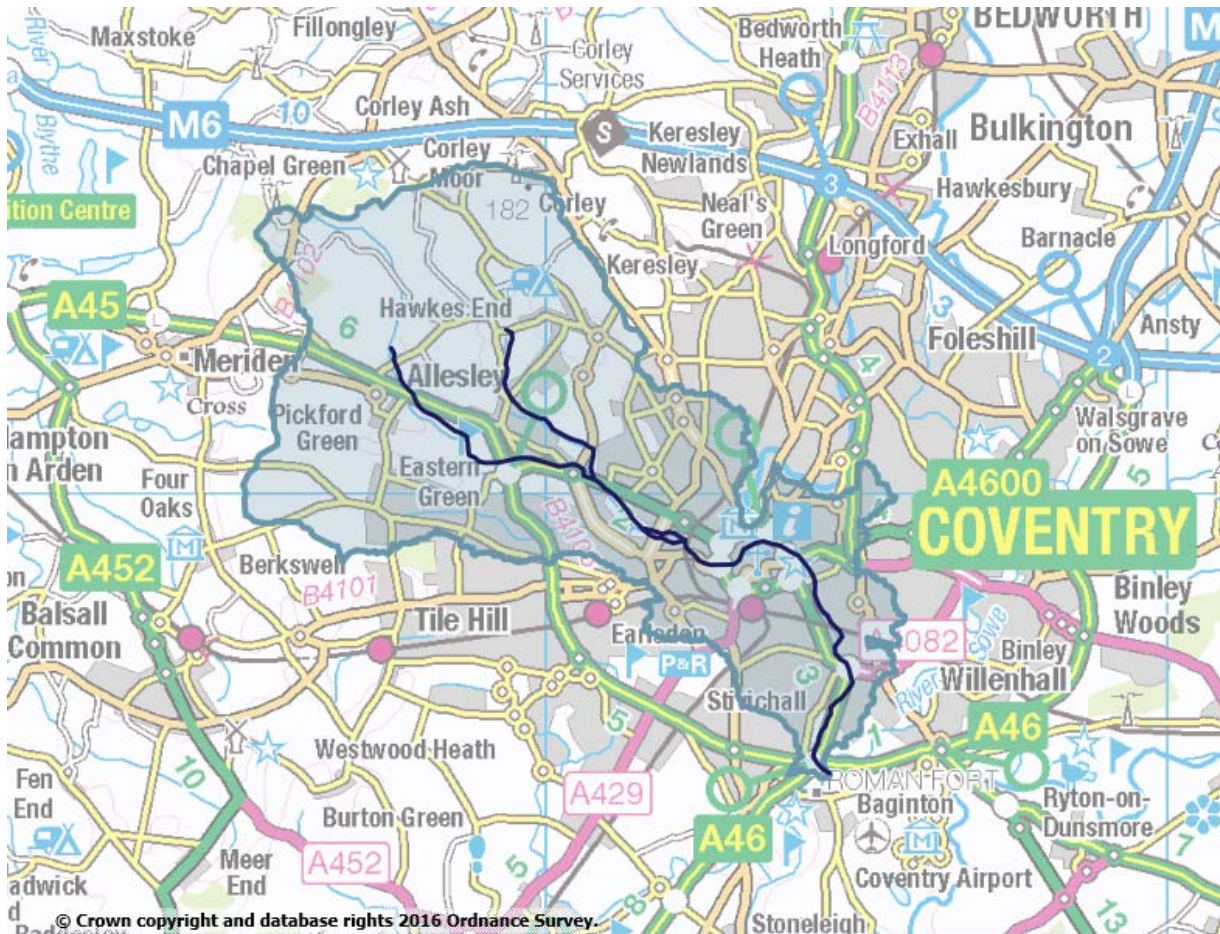


Figure 1 Sherbourne catchment (from <http://environment.data.gov.uk/catchment-planning/WaterBody/GB109054044620>).

Elsewhere in the catchment, the Charterhouse Coventry Preservation Trust has been awarded Heritage Lottery Funding to develop a project for a heritage park at the site, which includes sections of the river. There is also a project to daylight a section of the river where it is extensively culverted under the City centre.

The Sherbourne Partnership is an informal interest group centred on the river; they have designated 2017 as “the year of the Sherbourne” with a timetable of events to raise the profile of the river and provide opportunities to volunteer.

3.0 Habitat Assessment

The river was inspected upstream and downstream of the road bridges on Four Pounds Avenue at National Grid Reference SP3175679298 (Figure 2). Upstream of the road the river flows through Lake View Park (public open space). Downstream of the road, it flows through land owned by Coventry City Council, part of which is an inaccessible (locked) and overgrown former allotment site, and part of which is an extant allotment site.

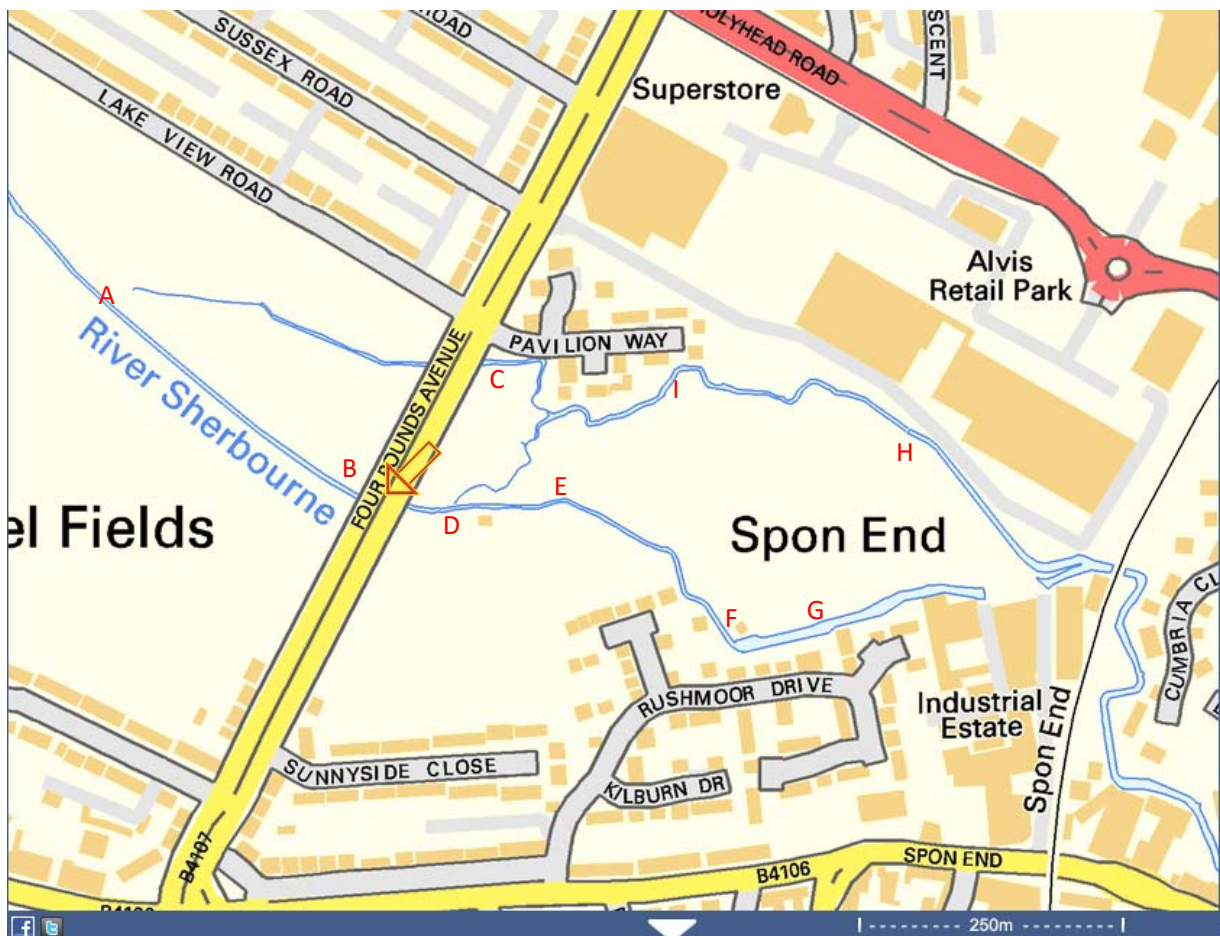


Figure 2 Location of site visit, upstream (east) and downstream (west) of Four Pounds Avenue.

The river diverges into two channels in Lake View Park upstream of Four Pounds Avenue (Point A, Figure 2; Photo 1). The southern channel is perched above the lowest point of the floodplain and carries the entire dry weather flow of the river (Photo 3); it is contained within clay-bunded banks and was likely historically diverted to supply water for milling (see Appendix, Figure 4). A pipe culvert connects the southern to the northern channel, allowing some water to overspill at higher flows (Point A; Photo 2).

Downstream of the road bridges, there is an overspill weir with stop logs (Point D; Photo 5) which allows higher flows in the southern channel to overspill into the northern channel. However, around 100m downstream of this point on the southern channel, a debris dam is causing a partial blockage and the clay bund bank has breached allowing approximately half the river's flow to spill overland into the northern channel (Point E; Photos 7 & 8).

The southern channel continues through the extant allotment site (with reduced flow), where it is the only water supply for plot holders. At least two weirs are present here (Points F & G; Photos 9 & 10) which step down the river bed level to re-join the northern channel near the railway bridge at Spon End Industrial Estate. A foul sewer storm overflow joins the channel on the right bank at Point F and was noted to be discharging a small volume of dirty water with sewage fungus present.

The upstream section of the northern channel contained little flow at the time of the visit (Point C, Photo 4), until it received the flow from the breach in the southern channel. Downstream of this point, the channel exhibited some semi-natural instream features including gravel point bars and an elongated pool-riffle sequence (Point I, Photo 12). The channel here is adjacent to the back gardens of properties on Pavilion Way and there has been substantial bank erosion in places which is causing concern to residents (Mark Yates, Coventry City Council, pers. comm.). Further downstream behind Alvis Retail Park, the northern channel has an artificial character, flowing within concrete banks (Point H, Photo 11).

In terms of in-stream habitat features, the southern channel is poor, being an artificial channel impounded for historic milling purposes. It is a low gradient, perched, clay channel with a bed comprised of fine sediment; at least two weirs are present at its downstream end which impound the upstream reaches. Although appearing straightened, the northern channel is likely to be closer to the original (pre-milling) course of the river; it appears to have a natural gradient with no impoundments (although its full length was not inspected) and has a range of sediment sizes including gravel suitable for fish spawning. As such it has better in-stream habitat than the southern channel, but its ecological value is limited by the historic flow diversion.



Photo 1 (Point A, Figure 2) Lake View Park with northern channel on the left (tree-lined) and the southern channel on the right (longer grass).



Photo 2 Pipe connection between the channels at approximate location of where Photo 1 was taken (SP3157779435).



Photo 3 (Point B, Figure 2) Southern channel looking upstream from Four Pounds Avenue bridge



Photo 4 (Point C, Figure 2) Northern channel a short distance downstream of Four Pounds Avenue.



Photo 5 (Point D, Figure 2) Overspill weir and stop logs on southern channel



Photo 6 Channel immediately downstream of overflow weir in Photo 5.



Photo 7 (Point E, Figure 2) Log jam and breach in clay bank on southern channel.



Photo 8 Overland flow below the breach in bank in Photo 7.



Photo 9 (Point F, Figure 2) Weir downstream of the allotments on the southern channel. Head loss approximately 2 metres.



Photo 10 (Point G, Figure 2) Another weir downstream of the allotments on the southern channel. Head loss approximately 0.75 metres.



Photo 11 (Point H, Figure 2) Northern channel downstream of footbridge (SP3211579343) behind Alvis Retail Park.



Photo 12 (Point I, Figure 2) Northern channel adjacent to back gardens of properties on Pavilion Way (approx. SP3191579355). Note increased flows compared with Photo 4 and more natural channel form and sediment composition than southern channel. Bank erosion on the garden side is a concern.

The invasive non-native plant Himalayan balsam is present along the river channels throughout this section. Stands of Japanese knotweed, another invasive non-native plant, were noted within the former allotment site. Early intervention to control and eradicate these plants is desirable.

4.0 Recommendations

The opportunities for improving the ecological value of the River Sherbourne in this location centre on prioritising flows to the northern channel, making use of its more natural gradient and plan-form. This could be done to various degrees, for example:

- As suggested by Chris Farmer (Environment Agency, per. comm.), removal of the stop logs from the overspill weir on the southern channel (Photo 5). This would allow the river to regrade to a more natural slope under the road bridge back in to Lake View Park, restore flows and fish passage to part of the northern channel (as far as the overspill). This option is relatively straightforward, inexpensive and reversible but does nothing to restore fish passage through the reach.
- As above, but with installation of a structure at the current overspill weir to formalise the flow split between the channels and improve fish passage. A reduction in the invert level (compared to that of the current concrete sill) may be possible, although water supply further along the southern channel (e.g. to the allotments) needs to be considered. Re-meandering of the southern channel upstream of the overspill may be possible under this option.
- A more extensive river re-naturalisation project could be undertaken, utilising the extensive space available in Lake View Park, upstream of Four Pounds Avenue. This could involve re-meandering the river, creating an inset floodplain prioritising the flow via the northern route. The southern channel could be retained as a flood relief channel with a residual flow. Both ecological and flood attenuation benefits could accrue from such a project, including restoration of fish passage and sediment transport throughout the reach.

Issues that would have to be considered in relation to the above include:

- Flood risk modelling to assess the potential impacts and benefits of the suggested projects. The capacity of the road bridge culvert where the northern channel passes under Four Pounds Avenue could be a key bottleneck.
- Bank erosion alongside the properties on Pavilion Way. Bank revetment could be undertaken independently to protect the gardens or, ideally, as part of a channel realignment (to a natural plan-form). It should also be noted that, money spent protecting the bank from erosion would provide little ecological benefit; however, money spent on a broader restoration scheme that would also address the erosion issues would realise multiple ecological benefits.
- Abstraction rights on the southern channel, for example water supply to the allotments which currently use water from the southern channel.
- Discharges to the southern channel, for example the foul sewer storm overflow adjacent to the weir in Photo 9.
- Heritage considerations.

5.0 Making it Happen

The next step in developing a project would be to gather more information and produce a project concept/proposal and basic assessment of feasibility. Useful information at this stage would include LiDAR maps, existing flood models, assessment of bridge culvert capacities and fluvial geomorphology data to inform likely channel dimensions and plan-form. The project proposal could be used as the basis for local consultation, further detailed project development and assessing costs and sources of funding.

6.0 Acknowledgement

The WTT would like to thank the Environment Agency for supporting the advisory and practical visit programme in England, through a partnership funded using rod licence income.

7.0 Disclaimer

This report is produced for guidance only; no liability or responsibility for any loss or damage can be accepted by the Wild Trout Trust as a result of any other person, company or organisation acting, or refraining from acting, upon guidance made in this report. Accordingly, no liability or responsibility for any loss or damage can be accepted by the Wild Trout Trust as a result of any other person, company or organisation acting, or refraining from acting, upon comments made in this report.

We have produced a 70 minute DVD called 'Rivers: Working for Wild Trout' which graphically illustrates the challenges of managing river habitat for wild trout, with examples of good and poor habitat and practical demonstrations of habitat improvement. Additional sections of film cover key topics in greater depth, such as woody debris, enhancing fish stocks and managing invasive species.

The DVD is available to buy for £10.00 from our website shop <http://www.wildtrout.org/product/rivers-working-wild-trout-dvd-0> or by calling the WTT office on 02392 570985.

The WTT website library has a wide range of materials in video and PDF format on habitat management and improvement:
<http://www.wildtrout.org/content/index>

Appendix



Figure 3 Environment Agency flood risk map with weirs and abstraction/discharge licenses marked.



Figure 4 Historic map of the area from 1888 (<http://www.oldmapsonline.org/map/nls/101585014>).