

**River Glen Improvements**  
**Fleetlore House, Baston, Peterborough**  
 Environment Agency, South Lincolnshire Fenland Partnership & Local Landowner

**BIG Biodiversity Challenge Award category: Medium Scale Permanent Project overview**

Our partnership project aims to improve the water environment on a section of the River Glen by adapting past modification of the river and re-connecting it to nearly 2 Hectares of floodplain.

The combination of berms, pools and riffles add much needed features for in channel habitat and to help sustainably manage sediment. During heavy rainfall events the ponds and other features will benefit from rejuvenation to enable the habitat to develop to its full ecological potential, as well as ‘polish’ water returning to the main water body.

The completed works will form a reference site to encourage other landowners and environmental partners in the Glen catchment to undertake similar projects in areas identified by the Glen Integrated Catchment Plan.

Our project partnership comprised local landowner, Environment Agency and South Lincolnshire Fenland Partnership.

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

Prior to the commencement of the project the landowner has tried to encourage wildlife onsite through the inclusion of owl boxes, ponds and a large sand martin house. The field itself is grassed and regularly mown as a lawn area.



Photo Description: Initial Site Layout Drawing

**Were there any specific reasons that led to this project?**

The project aims to provide an exemplar site to demonstrate to other landowner what can be done to not only increase the ecological potential on the area, but also improve the general water quality and flood management in the catchment.

Within the River Glen catchment the improvements will contribute to Glen Operational Catchment Water Framework Directive targets, helping improve the ecological potential and address actions in the Catchment Planning System.

The site provides a diverse mix of environments: 1.88Ha wetland, 2.6km of arable drainage interventions and 0.7km of physical river improvements to the River Glen.

## What were the biodiversity measures taken?

The project is designed as a small scale exemplar site to demonstrate the principles that can be repeated on a larger scale. Each element of the design was initially based on available land and known geography. However an element of flexibility during the construction phase contributed to the final placement of the swales.

The new pond, swales and in-river improvements help provide a varied habitat both in the water and on the banks, which is an overall gain in both the area and variety of habitat. We have designed the site to best serve as a biodiversity enhancement while still meeting the needs of the landowner.

As part of the engagement with the landowner and other partners we have modified the design, this includes stoned access points across the swales to allow access for the landowner to cut the grass areas. The maintenance linked to this has also been amended to now include an area that grows wild and has a wildflower mix added. The landowner has agreed to maintain this with a pathway through the area that he can use to enjoy the area, which gives access to promote the benefits of the site to guests, which we hope will include local schools, wildlife groups and other landowners in the catchment.

The stone material for the riffles and bank protection was sized based on the flow in that area, they were positioned to reduce erosion or for the riffle break the water flow and increase oxygenation of the water.



*Photo Description: Left top/bottom – New River Embayment and pool. Top Right – New swales in the main field area in front of the sand martin house. Bottom Right – New Riffle followed by a pool on the ditch river outfall.*

## How would you best describe the project?

Please state: Enhancement

## Further information

The new features were created in the river and field area using long reach and smaller excavator along with dumpers to move the material around. The key challenges were working in and near water, so the work had to be timed when flows were low and the addition of the floating silt net was required to ensure any silt that was being washed away during construction was captured.

The new swales are all linked in terms of a base level that is referenced a set height above the low river level. This level will ensure that during flood events, estimated to be 5-10 times a year, the flows will travel through the whole site and regenerated the ponds and banks of the swales.

The whole field area has been designed to not only provide a valuable diverse habitat but also help in flood prevention due to the storage volume of the new features. The construction phase is only the start, as monitoring over the next few years will enable the full benefits to be maximized. Further studying of the site is to continue.

The key to this project and on a future sites is to not be rigid in the design and to be dynamic and responsive to suit the site conditions as construction progresses. We have taken advice from Lincolnshire Wildlife Trust to ensure the best planting and reseeded options are taken to suit the diverse environment we are creating.



*Photo Description: The construction Process and methods used, including top right silt capture in the main river*

## What was your personal motivation for carrying out the enhancement?

The site offers a great opportunity for me to be able to develop my knowledge on habitat creation. The completed site now enables me to show stakeholders within the EA and on other schemes what can be achieved on a relatively small scale site which can be scaled up.  
(Reference: Sam Hooley)