

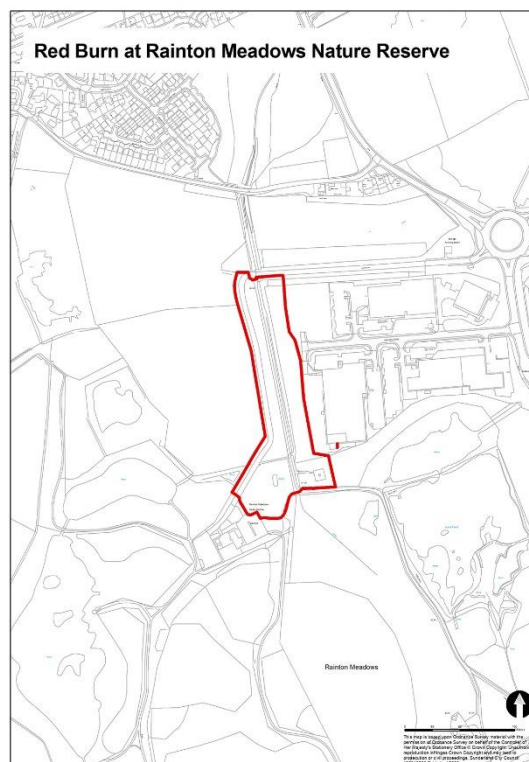
# Proposals for Red Burn at Rainton Meadows

## 1.0 Introduction

1.1 The Red Burn, which flows through Rainton Meadows Nature Reserve, is a constrained and straightened channel. Adjacent to the water course are linear woodlands on the banksides, grassland and hedgerows, separated from the water course by a public bridleway. The surrounding area varies between open habitat to the west and south, and industrial buildings to the north/east and open areas largely consist of pasture with blocks of woodland leading surrounding conurbations.

## 2.0 Location and Accessibility

2.1 Red Burn is located in Rainton Meadows Nature Reserve (see also Appendix 2). There is a mix of open countryside and a series of small villages including Woodstone Village, Chilton Moor and West Rainton. Abutting the east bank is Rainton Bridge Industrial Estate.



## 3.0 Methodology

3.1 DWS were commissioned to carry out an ecological appraisal of Reburn in May 2022. DWS used the following methodology:

- Desk Based Study;
- An Ecological Assessment;
- Protected Species and Other Species of Nature Conservation Importance;
- Controlled Invasive Species;
- The Modular River Physical survey (MoRPh).

## 4.0 Site Context

4.1 There are 3 statutory designated sites within 2 km and 5 non-statutory designated sites within 2km:

- Joe's Pond SSSI
- Hetton Bogs LNR (which includes Hetton Park)
- Hetton Bogs SSSI
- Hetton Bogs West LWS
- Reburn Marsh LWS
- Rainton Meadows LWS
- Morton Wood LWS
- Houghton Hill Cut and Scarp LWS

## 5.0 Strategic Significance

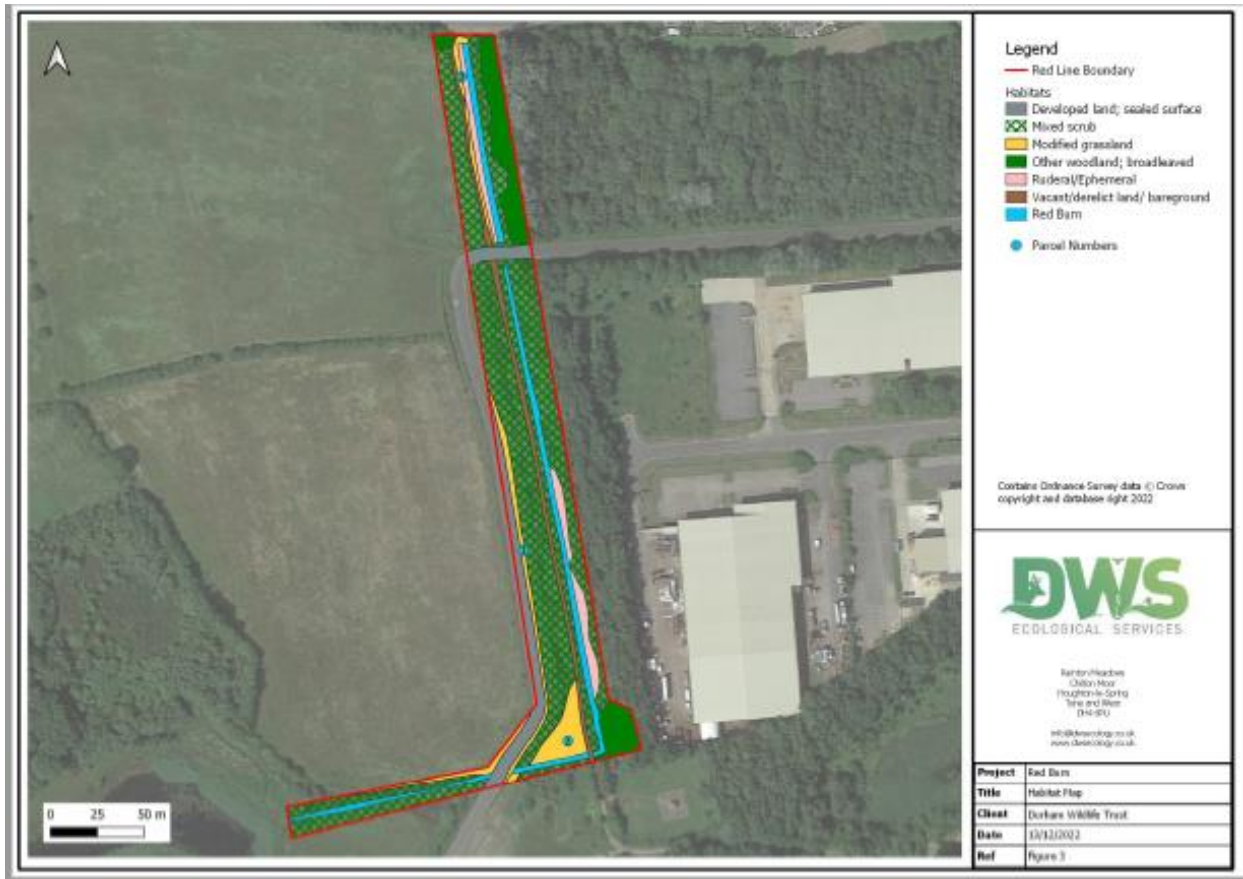
5.1 The site is identified in the Sunderland Local Plan as protected Local Wildlife Site, greenspace and open countryside, and acting as a strategic wildlife corridor. Due to the 'open countryside' status, the site has been input into the Biodiversity Net Gain (BNG) Metric Calculator as "Formally identified in local strategy". Areas of broadleaved woodland and rivers and streams are also identified within the North East England Nature Partnerships (NEENP) Durham Priority Habitats list.

## 6.0 Habitat Assessment

6.1 The habitat types found in Red Burn are set out below.

Habitats	Condition
<p><b>River</b></p> <p>The site follows the Red Burn from the south of Redburn Row, where it flows beneath and adjacent to Mallard Way, into the Rainton Meadows Nature Reserve. It was very difficult to see the watercourse on site during surveys due to the thin nature of the watercourse and the overgrown banks along the length. The river bed is a fine silt. Bulrush and common reed were observed growing in the riverbed. The stretch of burn surveyed is 543m in length and is surrounded by scrub, ruderal vegetation, and woodland. In most places the width of the burn is about 1 – 2m. The burn comprises of 1 linear channel which stretches north to south before flowing west, beneath the access road to Rainton Meadows (Mallard Way) twice.</p>	Moderate
<p><b>Scrub – mixed scrub</b></p> <p>Scrub is present on both sides of the burn, in most areas running up to the burn and in some places encroaching in and across it. The habitat has a generally well-developed edge but contains no rides or glades due to being unmanaged and a generally thin habitat between river and footpath or footpath and road. Species recorded are common with few undesirables such as common nettle. Both young and mature plants are present within the habitat.</p>	Moderate
<p><b>Sparsely vegetated land – ruderal/ ephemeral</b></p> <p>Patches where tall ruderal vegetation is dominant are present within site. A relatively large section of ruderal vegetation is present within the northern section of site, alongside the path. There are some additional areas of habitat toward the south of site, on the eastern bank of the burn. Some scrubby species are present within the habitat, where encroachment is present from adjacent habitat. Species are all relatively common, with some such as greater willowherb and meadowsweet, typical of damp environments. Non-native Canadian goldenrod is present.</p>	Poor

<p><b>Woodland</b></p> <p>Scrub on the east bank of the burn leads into woodland habitat. The woodland features a scrubby understory and is dominated by ruderal ground flora. A variety of species are recorded along the stretch of habitat. Most trees appear to be of the same age, relatively young, with no veterans recorded. The woodland is not easily accessible and therefore does not appear to have suffered from excessive poaching or damage by people.</p>	
<p><b>Grassland - modified grassland</b></p> <p>There are three areas of grassland within the surveyed site:</p> <ul style="list-style-type: none"> <li>• There is a section along the road verge heading in and out of Rainton Meadows. The section of grassland adjacent to the footpath within the north of site is of a low and relatively uniform height, appearing mowed. A small amount of bare ground is present throughout the habitat. Species present are generally of a low height and relatively stressed. This section of grassland has the lowest species richness overall but contains on average 8 species per m<sup>2</sup>. Most species are common and widespread within low distinctiveness grasses.</li> <li>• Larger area within the south-east of site which contains roughly 5 species/m<sup>2</sup> with a relatively tall sward height, featuring some variation within. Some small areas of bare ground are present within the habitat. The area is dominated with grasses although some tall and low growing herbaceous species are also present including carrot, which is not found elsewhere on site. Red clover is present in locally dominant frequency. A few scattered willows are present within the habitat, encroaching from dense scrub surrounding the burn. Species richness is slightly lower than the grassland around the road (5 species/m<sup>2</sup>).</li> <li>• A section to the east of the adjacent footpath north of Mallard Way. The grassland on the eastern road verge is generally of a varied sward height with very little bare ground recorded within the habitat. There is on average 6 – 8 species recorded per square metre of habitat. There are a variety of grasses and herbs including yellow rattle, a grass hemiparasite, within the sward. This is likely allowing more herbs to grow through.</li> </ul>	<p>Good</p> <p>Poor</p> <p>Moderate</p>



## 7.0 Protected Species and Species of Nature Conservation Importance

### Breeding and wintering birds

7.1 Bird records relate to Rainton Meadows. The site provides opportunities for a range of species to roost, nest, and commute. The burn and surrounding habitat create a small habitat corridor that birds may follow and the surrounding woodland to the north extends into a larger area of habitat, all suitable for foraging. Given the proximity of the site to the ponds present within Rainton Meadows, it is likely that a variety of species will utilise the site.

### Bats

7.2 It is likely that bats will utilise site, despite negligible roosting opportunities currently available.

### Badger

7.3 No evidence of badger was recorded during the site visit but the site itself is relatively small and it is possible that badger signs are present further within woodland. The site is relatively well used by members of the public, including dog walkers; this may deter badgers from utilising site.

### Western European Hedgehog

7.4 Given the evidence of hedgehog in the area, it is likely that the species will utilise site for commuting. Rank grassland could be used to forage and as sub-optimal shelter. Lack of hedgerow, scrub, or piles of habitat mean it is unlikely that hedgehogs would use site for

more than occasional commuting and foraging. However, surrounding will be a likely to act as a barrier and dog walkers may deter hedgehogs.

### **Otter and Water Vole**

7.5 No record of water vole or otter on site. However, the Red Burn will provide good connectivity to the rest of Rainton Meadows for otter.

### **Great Crested Newt (GCN)**

7.6 Considered to be absent.

### **Fish**

7.7 No fish records are present for Red Burn or related watercourses. As the burn was dry during the initial survey, no fish were present.

### **Invertebrates**

7.8 The Environmental Records Information Centre (ERIC) provided 394 records of invertebrates from within 2km. These are from a range of notable/red list/Natural Environment and Rural Communities (NERC) Act butterflies, moths, beetles, dragonflies, bees and flies. 243 records are from around site, within the Rainton Meadows nature reserve, and include common darter, small heath, dingy skipper, wall butterfly which are red-listed species. Small heath, dingy skipper and wall butterfly are also NERC Act species, as well as shaded broad-bar, also recorded within Rainton Meadows. The site has potential for rare and threatened invertebrates due to the range of habitats on site that, link directly to good quality habitats within the rest of Rainton Meadows including wetlands, woodlands, and grasslands including a variety of food plants.

## **8.0 Existing Management and Maintenance**

8.1 Red Burn forms part of Rainton Meadows, which is managed by Durham Wildlife Trust. The public footpath is managed by SCC.

## **9.0 General description and observations**

9.1 There is public access along the Red Burn, providing a pedestrian link from Rainton Meadows out to the surrounding countryside and conurbations. The channel appears to be very overgrown, and flows appears to be quite slow. The channel is culverted under Mallard Way at two points and then again as it flows under Black Boy Road. The entry points where the channel goes back underground has become choked and could lead to water backing up in times of high rainfall. Flooding can occur across Mallard Way and an opportunity to improve flows would be beneficial to reducing flood risk. Proposals include clearing the channel and creating some wetland scrapes in to the bankside to increase water storage.

9.2 Woodland scrub and grassland on the western boundary of the Red Burn offer the opportunity for additional scrapes to help hold water in times of high rainfall. Machines could come in via the bridleway and take out section of fencing which will retain the hedge on the roadside.

9.3 Opportunity to create a new hedgerow alongside Mallard Way will create continuity with existing hedgerows.

## 10.0 Summary of Constraints and Key Issues

Issue	Comment
Planning Policy	Proposals support local policy, enhancing the protected LWS, greenspace, wildlife corridor and open countryside.
Climate Change and Health	Proposals will support further opportunities for carbon sequestration. Not within an area of deprivation, though site enhancement will support wider former Coalfield area.
Greenspace	Area has below average quality greenspace in adjacent urban areas – this site helps to mitigate for this lack of urban quality.
Biodiversity	Proposals will further support biodiversity on site and within the wildlife corridor.
Invasive Species	None identified in this area.
Landscape Character	Not an area of higher landscape value. Landscape Character Assessment recommends strengthening settlement boundaries, for example woodland belts.
Historic Environment	Limited historic importance on site. Local importance- site of Nicholson's Pit and former waggonways.
Water Environment	Flood Zone 3 lies immediately to the north of the site (on the Red Burn). Site in question is prone to flooding. Proposals (including watercourse clearing and additional wetland scrapes) will reduce flooding potential.
Rights of Way / Access	Public bridleway follows Red Burn. Minor informal path improvements will be undertaken where needed.
Soil and Nitrates	No negative impact on soils. No nitrate fertilisers will be used as site lies within Nitrate Vulnerable Zone.
Utilities	Medium pressure gas pipe follows eastern boundary of site. No other no major utilities identified. Works undertaken will respect necessary easements.

## 11.0 Proposed Works

### 11.1 Habitat Management aims at Elemore Vale:

- To improve flows and water storage along the Red Burn by removing in channel vegetation.
- To increase wetland habitats alongside the Red Burn.
- To plant new hedgerows alongside Mallard Way.

## 12.0 Budget for Red Burn.

Source of Funding	Amount
S106	7,000
NECF	7,970
NLHF	14,000
<b>Total</b>	<b>28,970</b>

### Work Programme for Redburn

Habitat	Project	Delivery	Budget – Capital	Months
Channel	Vegetation Clearance from Channel	Contractors	4,000	
	Post and Rail Fencing	v/S/T	5,000	
	Creating scalloped edge alongside water course		5,000	
Wetland	Scrape Creation	Contractors	7,000	
Hedgerow	Plant new hedgerow alongside Mallard Way approx. 450m	Contractors	7,970	
Total			28,970	

### Further information

If you would like to discuss the proposals/detail further, please contact:

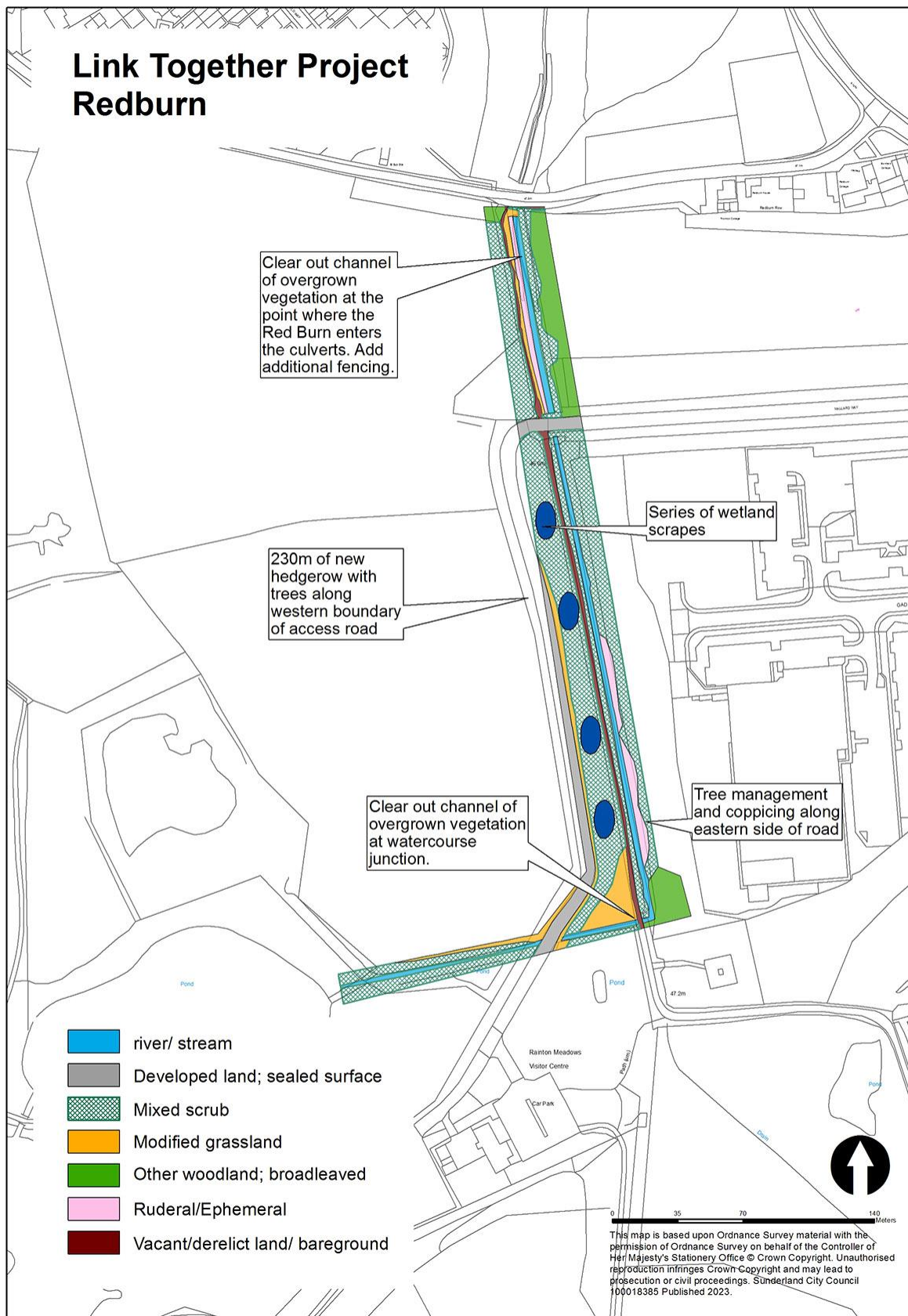
Anne Gladwin

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<https://www.durhamwt.com/link-together>

# Link Together Project Redburn



Clear out channel of overgrown vegetation at the point where the Red Burn enters the culverts. Add additional fencing.

230m of new hedgerow with trees along western boundary of access road

Clear out channel of overgrown vegetation at watercourse junction.

Series of wetland scrapes

Tree management and coppicing along eastern side of road

- river/ stream
- Developed land; sealed surface
- Mixed scrub
- Modified grassland
- Other woodland; broadleaved
- Ruderal/Ephemeral
- Vacant/derelict land/ bareground

0 35 70 140 Meters  
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## Appendix 1:

### WRT Watercourse and Catchment Intervention - Examples

#### Earth Bund



**Earth Bund** - A sloped embankment or bund constructed from earth. They are designed to withhold water flowing over land during high rainfall events and prevent flooding. They can also intercept pollutants. They are engineered to limit outflow and designed for longevity with hidden structure and pipes.

#### Large woody debris



**Large Woody Debris** - also referred to as LWD, is typically described as fallen trees, logs, and branches that are at least four inches wide and six feet long. These cost-effective features are designed not to impede low/moderate flows but help water onto the floodplain during high flow events. Leaky design (that doesn't try to contain the power of water) and heavy-duty steel fixings prevent damage and dislodgement.

#### Green bank protection



**Green bank protection** is used to protect banks from erosion by reducing the erodibility of earth banks. Willow weaves, fixed brush, driven posts with fixings create a low risk, cost effective habitat improvement.

### Drainage improvements



**Drainage improvements** help convey surface water to areas of temporary flood storage. Gravel drains, pipes, swales can intercept surface water, improve access and reduce the risk of pollution downstream.

### Wetland scrape



**Wetland scrapes** can help to create additional 'temporary' flood storage in floodplains. They can also trap sediments and encourage infiltration to groundwater.

### Fish passage easement



Engineered solution to facilitate fish passage at man-made in river obstructions. Simple **fish easements** in a 'close to nature' style can be engineered with block stone or fixed baulks or beams can modify flows to allow improved river function.

### Fence to intercept litter



**Windblown litter** is intercepted by carefully placed **fencing**. The resultant litter is easier to collect and prevents watercourses becoming blocked.

### CSO



**Combined Sewerage Overflow (CSO)**. Hard engineered structures that require maintenance and can lead to bank and bed scour. Can be protected with green engineering. In stream steps can become a barrier to fish and sediments.

### Re-meander



**Creating a new meandering course or reconnecting cut-off meanders**, therefore slowing down the river flow by reducing gradient and providing additional flood storage. Reconnection to floodplain is possible.

### Channel aggradation



**Channel aggradation** means the replacement of river gravels which have been lost due to channel scour or changes in channel geometry. Can lead to dramatic improvements in river process, form and function.

### Livestock fencing



**Livestock fencing** from watercourses directly benefits water quality and encourages beneficial riparian vegetation i.e. bank habitat.

### Tree coppicing



**Tree coppicing** is a traditional technique which benefits watercourses which are overshadowed. The coppicing of bankside trees increases the longevity and health of these features, provides valuable habitat and habitat corridors in river valley and wetland landscapes. In the right location selective coppice can help stabilise river and ditch banks.

### Stone bridge protection



Where bed scour and channel incision expose foundations, **stone and/or green engineered protection** around footings and banks can reduce/reverse scour by working with natural processes common to all hard structures in stream.

### Tree thinning



As well as benefitting woodlands, **thinning** can allow light into tunnelled sections of river. Arisings can be utilised for in river works.

### Himalayan Balsam- Invasive species removal



As its name suggests, **Himalayan balsam** is from the Himalayas and was introduced here in 1839. It is an invasive weed of riverbanks and damp areas, where it prevents native species from growing. When it dies back in winter, riverbank soils are more rapidly eroded

### Japanese Knotweed- Invasive species removal



**Japanese knotweed** and **Giant Japanese Knotweed** are perennial weeds, producing tall canes, up to 2.1m (7ft) in height during the summer. It forms mono-cultures and due to its ability to damage buildings, can impact property values. Winter die back also produces bare patches of earth.

### Giant Hogweed- Invasive species removal



**Giant Hogweed** is a close relative of cow parsley originally from Southern Russia and Georgia. It can reach over 3m (10ft) in height. It is highly invasive, forming mono-cultures and the sap can cause severe skin burns to pets and people. It also dies back in winter exposing ground to elevated rates of soil loss.

# Appendix 2

