Naturally Resilient

Natural Flood Management techniques- Level 1

Slowing Water

Riparian Buffer Strips

Description

Buffer strips are land adjacent to water courses that is taken out of agricultural production to trap and filter soil erosion, fertiliser and pesticide run-off. The buffer strips increase the roughness of the overland flow path ways, intercepting run-off and slowing the flow of water into the channel. The vegetation in the buffer strip can help stabilise the bank, further protecting against soil erosion and siltation. Additionally the increased shade helps improve habitats for aquatic life.

Design

The buffer strip should aim to be 6m wide starting from the bank top to have maximum effect, with a minimum of 2m width and no gaps. The strips should be fenced off to exclude livestock, which can cause bank erosion and graze the buffer strip vegetation. The fencing should run parallel with the river, line wire or large space netting is advised to prevent trapping of vegetation material carried by flood waters. Consent will be required for buffer strips on main rivers only.

Key points to consider

- The steeper the land the wider the buffer strip will need to be in order to be effective
- Buffer strips should be fenced off to exclude livestock, alternative water sources will be needed for livestock.
- The strips can incorporate different vegetation types to increase roughness. Riparian woodland intervention can supplement buffer strips.
- Monitoring and control of invasive species in the buffer strip and appropriate management action. e.g. Himalayan Balsam and Giant Hogweed.
- Buffer strips can also be created in-field and at other points across the catchment that are prone to soil erosion in order to further protect water quality from sedimentation.
- Buffer strips can act as a wildlife corridor, and good habitats for ground nesting birds.
- ** Farming Rules for Water ** (April 2018)- 'Any land within 5m of inland freshwaters must be protected from soil erosion by preventing livestock poaching'

Suggested tree species mix for Riparian woodland buffer strips. *

- Alder
- Hazel
- Willow
- Birch
- Rowan
- Hawthorn

*Tree selection is site specific

Consenting and grants

Consenting for tree planting might be required, please check with relevant local authorities.

If within 5m of a main river, Environment Agency consent will be required.

Riparian Buffer Strips

Slowing Water

Grass buffer strips

Grass buffer strips are commonly used for slowing water and are effective at trapping sediment and nutrient run-off from agricultural practices. They can be sown with a suitable grass mix or left to regenerate naturally. The increased vegetation roughness helps to slow and intercept surface run-off. Root systems of grass and other vegetation are able to absorb nitrate, mitigate leaching, further acting to improve water quality. The most effective way to create buffers strips is to use fencing, which prevents livestock grazing.

Materials required:
High quality fence post- 15 year guarantee line wire or large space netting.

Equipment required:
We advice using a skilled contractor

Estimated cost:
£7.50 per metre

Riparian Woodland Buffer Strips

Trees can be planted in the buffer strip to increase roughness of the land surface and habitat provision. See the tree planting help sheet for further information and guidance on riparian woodland. Please note, if tree planting is considered, fencing will be required to exclude livestock.

Materials required:
Trees (refer to species mix)
Stakes and guards

Equipment required:
Tree planting spade
Lump Hammer

Estimated cost:
£3 per tree

Maintenance (Low)

- Repairing fencing to exclude livestock and preventing bare ground in the buffer strip.
- Grass buffer strips may need to be cut every few years to prevent the development of scrub. Cut alterative sections to increase the diversity of habitats for wildlife.

Links and resources

Campaign for the Farmed Environment: http://www.cfeonline.org.uk/home/
Scottish Environment Protection Agency (SEPA)- Riparian Vegetation Management: https://www.sepa.org.uk/media/151010/wat_sg_44.pdf
The River Restoration Centre (RRC): http://www.therrc.co.uk/manual-river-restoration-techniques