

# THE WATERCOURSE MAINTENANCE GUIDE



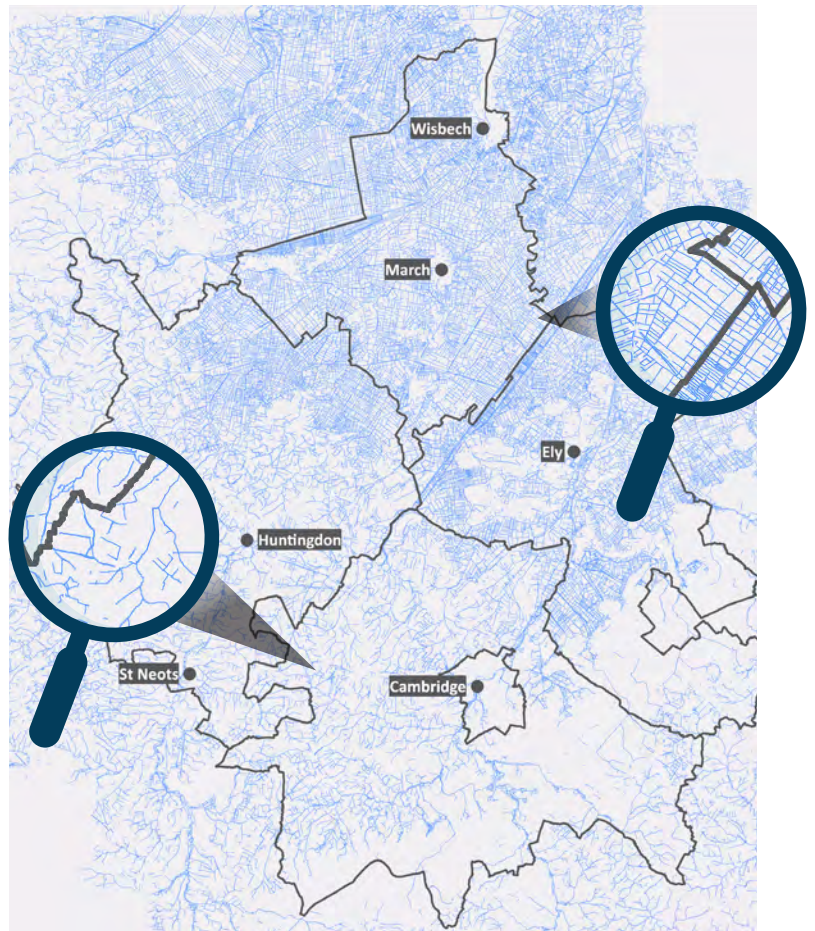
Maintenance requirements vary across the county for different watercourses. In the “highlands” to the south of Cambridgeshire, and in parts of Huntingdonshire, steep hills and valleys mean surface water can run off land and down into towns and villages very quickly.

This means more gentle techniques that work with natural processes, to slow the flow of water running off land may be appropriate. Such techniques might include changing the direction of ploughing in a field, planting trees and woodlands and introducing woody debris dams into **watercourses**.

In the low-lying fenland, land is actively drained, with straight cut ditches at the edges of most fields. These man-made ditches move and deposit **sediments** in different ways to the natural **watercourses** in other parts of Cambridgeshire and therefore more frequent, and/or stringent maintenance activities are required. Furthermore, much of the land is below sea level. This, combined with peat degradation means water needs to be pumped up into receiving rivers, which carry flow to the sea. This heavily engineered pumping, and maintenance of associated ditches and other **watercourses**, is usually managed by Internal Drainage Boards.

Lots of **watercourses** across the county have been **culverted** or piped, leaving them to be forgotten about and not maintained until they block or collapse, and flooding occurs.

Additionally, lots of **watercourses** across Cambridgeshire have been artificially straightened, meaning they don't move and deposit **sediment** in the same way that a natural meandering **watercourse** would. Unless an appropriate maintenance programme is put in, or room can be made for the river to re-meander, there may be an increase in flood risk. Furthermore, it is easier to provide habitats for biodiversity with meandering watercourses as there is more natural variation in the environment. For more information on re-naturalisation please see [The Watercourse Reinstatement Guide](#).



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Restoration activities on the River Shep,  
South Cambridgeshire Wild Trout Trust  
© R Mungovan

Anything obstructing the normal flow of water or obstructing the likely flood flow of water, should ideally be removed from the **watercourse** as soon as possible once spotted. Some **watercourses** may only carry water after an extreme rainfall event. These **watercourses** require just as frequent maintenance and inspections as a **watercourse** with water in it all the time. This is because an extreme rainfall event could come at any point and cause the **watercourse** to fill up.

Generally, the most intensive maintenance works to an open **watercourse** will happen at the end of summer, usually either once per year, once every other year, or on alternate banks each year.

Maintenance at the optimum schedule for the environment can reduce long term costs. The graph opposite demonstrates how small regular maintenance activities allow a **watercourse** to last longer between larger maintenance interventions within its predicted design life.

### **Consents and permits**

A consent or permit may be required for construction or alterations that affect the flow of water in a **watercourse**. This includes temporary works such as temporary damming or over pumping that might be required for extensive maintenance in **watercourses** with a high flow.

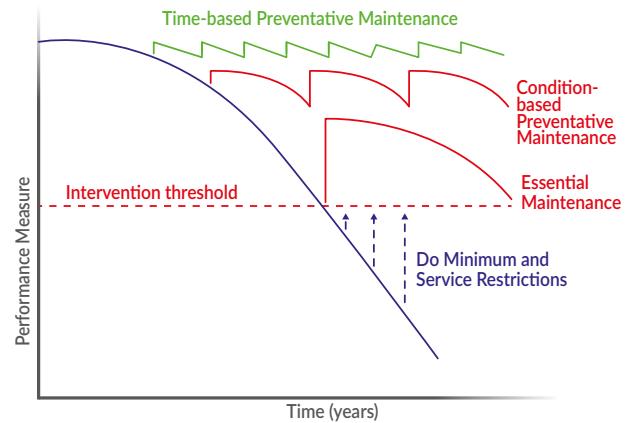
Please see the **Resources** document for more information

### **Who can get involved in maintenance works?**

Small to medium sized open **watercourses** can be maintained by residents, landowners, and community groups. However, larger open **watercourses** and most **culverts** will require maintenance from a contractor.

Those who are less able to undertake manual works can get involved in the planning, preparation, and leadership of the maintenance works.

It is your responsibility to ensure you are undertaking maintenance safely, with appropriate training and insurance where required, and undertaking sufficient risk assessments where appropriate. Cambridgeshire County Council accepts no liability for any injury arising as a result of riparian maintenance.



Re-shaping works on Vicar's Brook (Mungovan, 2021)  
Wild Trout Trust © R Mungovan

### **Maintenance Inspections**

Regular inspections should be undertaken to determine when maintenance works are required. Inspections may be required more frequently in certain scenarios, for example if the **watercourse** is **culverted** (piped) or if the **watercourse** is susceptible to littering and fly tipping.

Open **watercourses**, can be inspected by residents, landowners, and community groups.

For **culverts**, if you cannot see from one end to the other, inspection should be undertaken by a contractor, who will use specialist equipment and training to undertake a CCTV survey.

This is particularly important for long **culverts**; **culverts** with bends or changes in direction; and **culverts** that are likely very silted or otherwise blocked up.



## Culverted watercourses

Maintenance works to **culverts** may be required much more frequently than works to open **watercourses**. This is particularly an issue:

- if trees are growing close to the **watercourse**, as tree roots can damage the culvert.
- where the **culvert** is significantly smaller in size than the open **watercourse** cross section upstream or downstream, as here the culvert acts as a restriction in the capacity of the watercourse, so there is an increased risk of blockage.

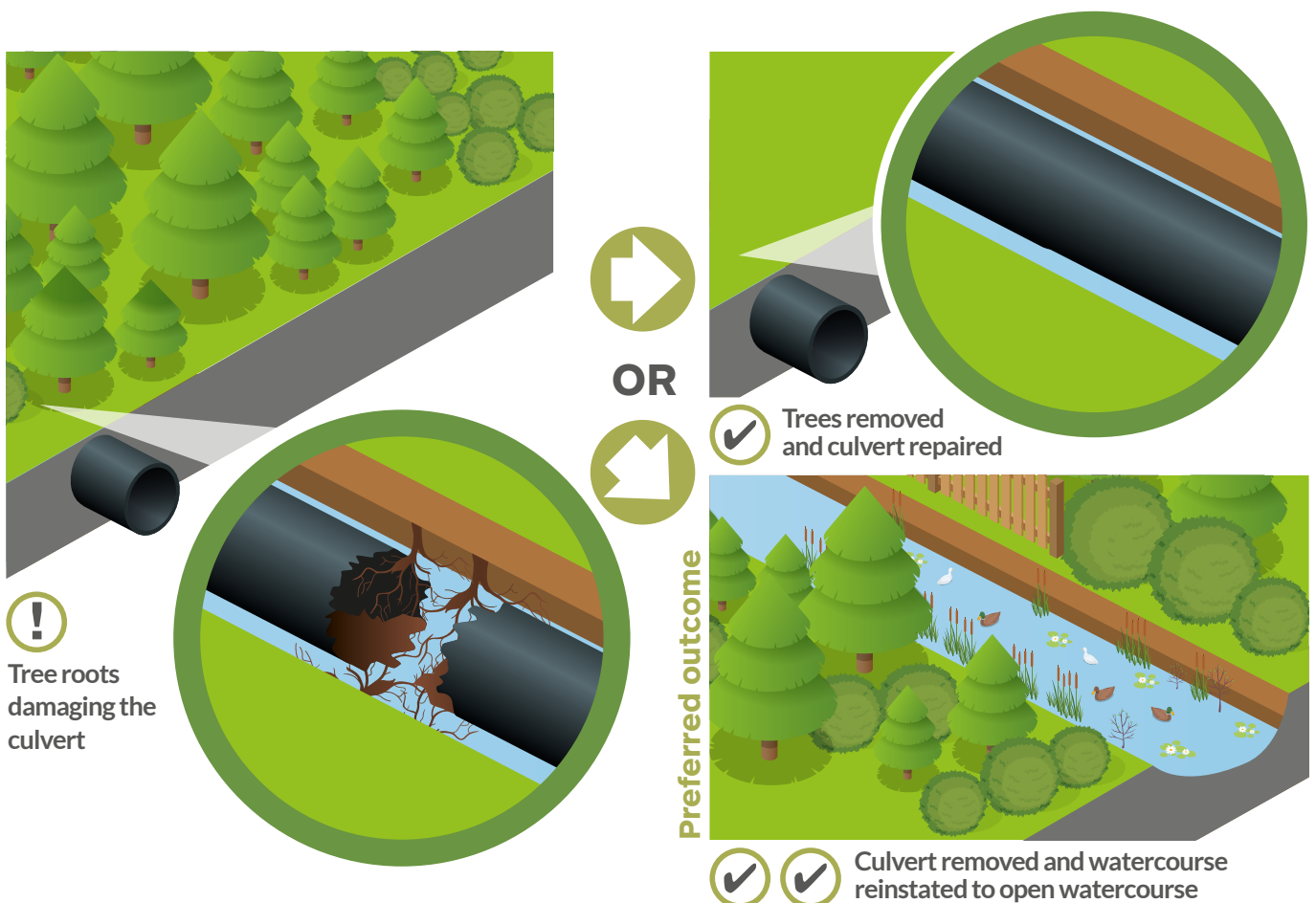
Specialist machinery and equipment is required to maintain most **culverts** (see above) and therefore we recommend employing a contractor.

To avoid the specialist maintenance requirements associated with a **culvert**, you may wish to reinstate the **culvert** back to being an open **watercourse** in a process which is sometimes known as daylighting.

This would also require a contractor, but it would be a one-time cost rather than the regular expense of maintaining a **culvert**, as once the **culvert** is reinstated you could maintain it yourself, or with other residents, landowners, or a community group.

For more information on **culvert** removal and reinstatement please see the guidance [The Watercourse Reinstatement Guide](#).

## Culvert repair vs Watercourse Reinstatement



## Biodiversity

**Bird nesting season is between April and October.** Between these times you must survey any trees, hedgerows, and vegetation for active bird nesting. Works cannot go ahead if bird nesting is taking place, until the end of **bird nesting season**.



It is an offence under Section 1 of the Wildlife and Countryside Act of 1981 to intentionally take, damage or destroy the nest of any wild bird while it is in use or being built.

**Culverts** can also provide roosting features for bats, particularly those made of brick or stone and over 1m in height.

Bats can roost in very small gaps between brickwork (missing mortar) or other holes within the structure and therefore, are more likely to be found within **culverts** that have been poorly maintained.



Bats and their roosts are protected under the Conservation of Habitats and Species Regulations 2017 (as amended), making it illegal to damage, destroy or obstruct the entrance to their roosts. Prior to any maintenance works, these structures should be assessed for the presence of roosting bats by a suitably qualified bat ecologist. Further information about bats and waterways, including culverts, is available from **The Bat Conservation Trust: [www.bats.org.uk](http://www.bats.org.uk)**

It is important to strike a balance between ensuring the free flow of water by undertaking **watercourse** maintenance, and in supporting the natural environment. This can be achieved by a variety of methods such as mowing **watercourse** banks alternately each year, to support the growth of wildflowers and create habitat for invertebrates.

You can also leave vegetation clippings on the banks of the **watercourse** for a short period after maintenance, providing it does not blow into the **watercourse** and block it up, or obstruct any public right of way. This allows any wildlife in the vegetation to return to their habitat. If you have the space, you can then move vegetation to an area away from the **watercourse** which is sheltered from the wind. Piles of vegetation like this can create an ideal nesting spot for small mammals such as hedgehogs, and invertebrates like beetles and moths.



Kingfisher from Wildlife Trust BCN competition in 2017 © Robert Grice



Pipistrelle Bat resting on some brickwork



Bug Hotel at Worts Meadow Local Nature Reserve, Landbeach



Water vole habitat on A14 Cambridge to Huntingdon Scheme © National Highways

Furthermore, if you have waste soil, wood, or fly tipped materials, you could use this to create a bug hotel. These are often covered with soil and grass is seeded.

Alternatively, if you have less space, you could compost the vegetation clippings, or request a bulky waste collection from your local council – please see the **Resources** document for more information.

The image opposite shows a good example of the balance between biodiversity enhancements and allowing free flow of water. There is healthy vegetation on **watercourse** banks, **marginal aquatic planting** and **macrophytes**, which are plants that grow below the water level. The planting is not invasive and with an adequate maintenance plan the vegetation will not grow to block the **watercourse**.

  **Open Watercourse Maintenance Schedule**

An example maintenance schedule is provided below for open watercourses, to give you an idea of how you might maintain your watercourse. A **Blank Template** is also available on our website. (Woods Ballard, et al., 2015)

			Monthly at the start, then yearly or every other year on alternate banks to allow for the growth of wildflowers and habitat creation for invertebrates
	Any time there is damage- it is more important to repair the damage than to sow the grass at the right time of year		

## **Culvert Maintenance Schedule**

An example maintenance schedule is provided below for culverted watercourses, to give you an idea of how you might maintain your watercourse. A **Blank Template** is also available on our website. (Woods Ballard, et al., 2015)

Maintenance Schedule	Time of Year	Required Action	Typical Frequency
Routine Maintenance	All year round	Inspect inlets, outlets and manholes/ inspection chambers for blockages, litter, and debris and clear if required	Monthly
	Monthly, especially in winter and also after any significant storm event	Inspect inlets for silt accumulation, establish appropriate silt removal frequencies	Monthly and after any significant storm event
	<p>Outside bird nesting season April - October if there are nests present.</p> <p>Ideally at the end of the main growing season in summer, just before leaf fall and winter flood season</p>	Remove nuisance plants such as trees with ingressing roots damaging and blocking the culvert	Monthly for the first 6 months to remove the main trees and any following saplings then as required after this
Occasional Maintenance	Just before winter and any time inspection indicates this is required e.g., after a storm	Jetting the culvert with high pressure water to remove blockages and silt	Yearly and if deemed required following inspection e.g., after a significant storm event
Remedial Actions	Any time inspection indicates this is required	Repair damage to the culvert, inlet, or outlet	As required

## Explanation Of Terms

### **Marginal Aquatic Planting**

Plants at the water's edge and on the banks in a semi-aquatic environment, such as purple loosestrife and yellow flag iris.

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### **Macrophyte**

Aquatic plants, such as water cress, different species of pondweed, reeds, and reed grasses.

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### **Bird Nesting Season**

April to October in the UK.

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### **Watercourse**

Over the years many different words have been used to describe the natural and urban systems that store and move water: river, stream, ditch, dyke, swale, lode, culvert, piped watercourse. We use the term "watercourse" as an umbrella term to describe any channel, above or below ground, that may to move water from one place to another.

Watercourses and waterbodies do not need to have a formal inlet or outlet to move or store water. Water can enter from rainfall, overland or groundwater inflow, and exit either by soakage into the ground beneath, or by evaporation. Usually, smaller watercourses discharge into larger watercourses, in a network that moves surface water runoff from rural and urban areas into rivers, and then out to the sea.

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### **Groundwater**

Water stored underground in porous rocks such as limestone and chalk and in soil.

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### **Porous**

A material which has small holes or gaps which can hold water, air or other liquids and gases.

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### **Riparian**

The word "riparian" means next to water, it can be used as to describe people who live on, own or tenant land next to a watercourse, and also the environment next to a watercourse, for example riparian planting and riparian trees.

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### **Culvert**

A watercourse which has been piped.

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### **Sediment**

Clays, silts, sand, gravel, pebble, cobbles, and boulders (all classified by particle size from smallest to largest respectively) that are carried along watercourses from the source to the sea. Sediment loads in a river depend on the geology of surrounding land.

The main sediment source in watercourses is erosion of the banks and bed, but sediment can also runoff of adjacent land when it rains. Construction sites should have a sediment management plan to prevent excess sediment reaching surrounding watercourses.

## References

Highways England, n.d. A 14 Cambridge to Huntingdon - Environment. [Online]

Available at: <https://highwaysengland.co.uk/our-work/a14-cambridge-to-huntingdon/environment/>

Mungovan, R., 2021. Re-shaping works to Vicar's Brook. [Art] (Wild Trout Trust).

Woods Ballard, B. et al., 2015. The SuDS Manual C753, London: CIRIA.

Available at: <https://www.bbc.co.uk/news/uk-england-40548635>



### Contact us

If you require assistance accessing any data or information discussed above, have a query, or would like more information about a topic or relating to your site, please do not hesitate to contact us at:

**[floodandwater@cambridgeshire.gov.uk](mailto:floodandwater@cambridgeshire.gov.uk) or Call 0345 045 5200 between 9am-5pm Monday to Friday, ask for a member of the Flood Risk team.**



### Flood Risk team

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