

Weather Wise Gardens:

A guide to creating a nature friendly garden for our changing climate.



Did you know 1 in 5 homes are now at serious risk of flooding in the UK?

This leaflet suggests 12 simple actions to make your home and garden more resilient to weather changes while helping the environment.

Then **make space to store water**. Make sure excess water has somewhere to go by adding a water butt, rain garden, swale or a pond. Size your feature(s) depending on the needs of the property.



Scan the QR
code to visit
flood.essex.gov.uk
for more
information

- Start by observing the natural flow of rainwater in your garden. Note where the water comes from and where it flows and collects.
- Make note of additional factors such as sunlight, layout, and soil type to find what works best for you and your garden
- Get creative by bringing different features together.
- Different plants and trees flower at different times, add variety for best results.

The following symbols are used throughout the guide to help understand how each feature benefits the environment in different ways.



Reduces Flooding

A **cost guide** is also included, although each cost will vary on the scale of the project and how you source materials



High Cost >£1000

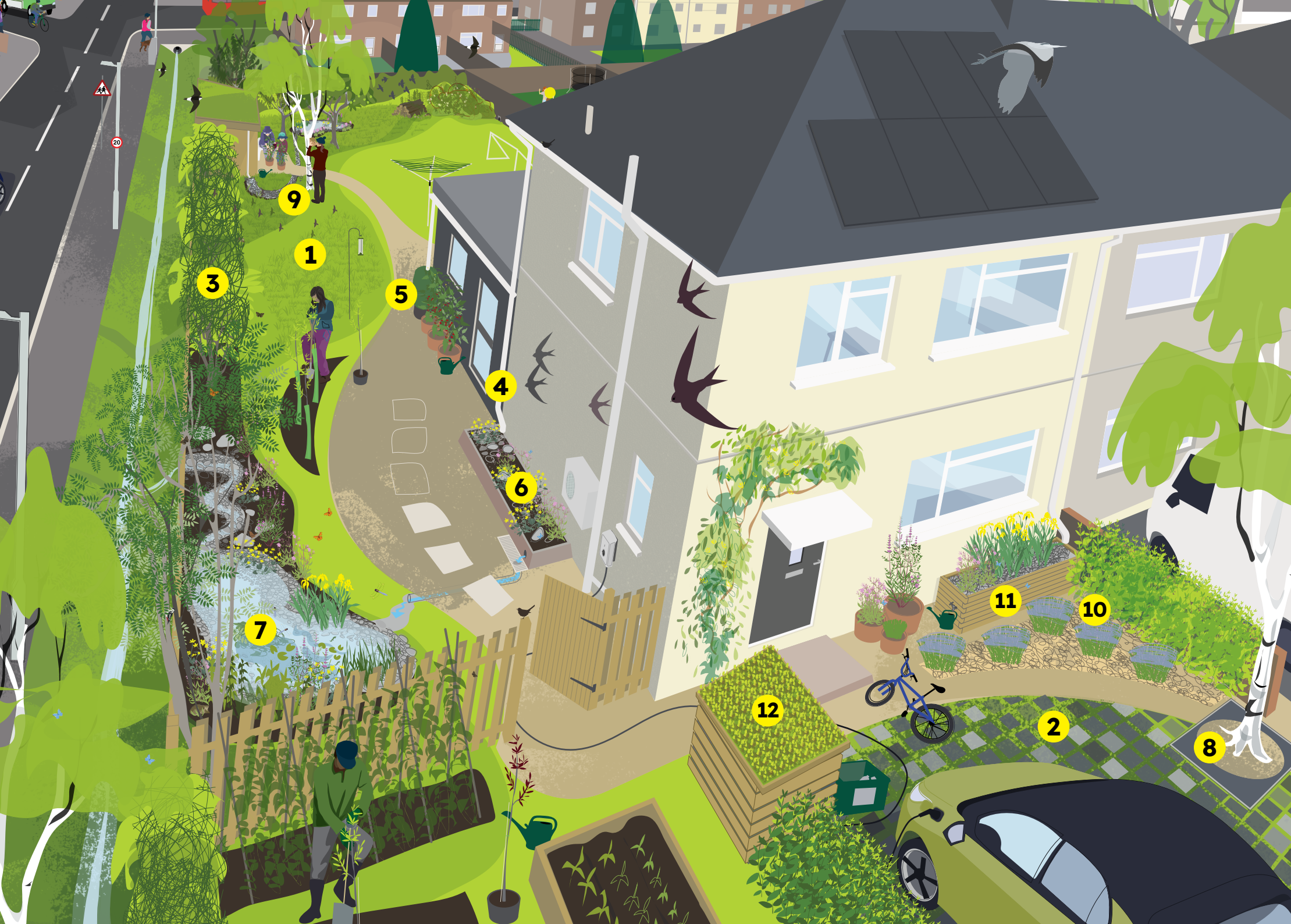
Many features suggested also support wildlife which can help your garden thrive, just like how having a bee friendly garden can help plants flourish.



Costs are based on using new materials and in some case hiring contractors. You can save money by doing the work yourself and repurposing materials! Search WWT, Flood Re, RHS and RSBP, for low-budget, DIY projects.

Explore the garden overleaf for ways to make your garden happy

Open me



A well planned garden can help reduce the impacts of extreme weather while helping nature thrive. 12 features of a happy garden are laid out in the image and covered in more detail over the following pages. Pick and choose which work best for your garden.

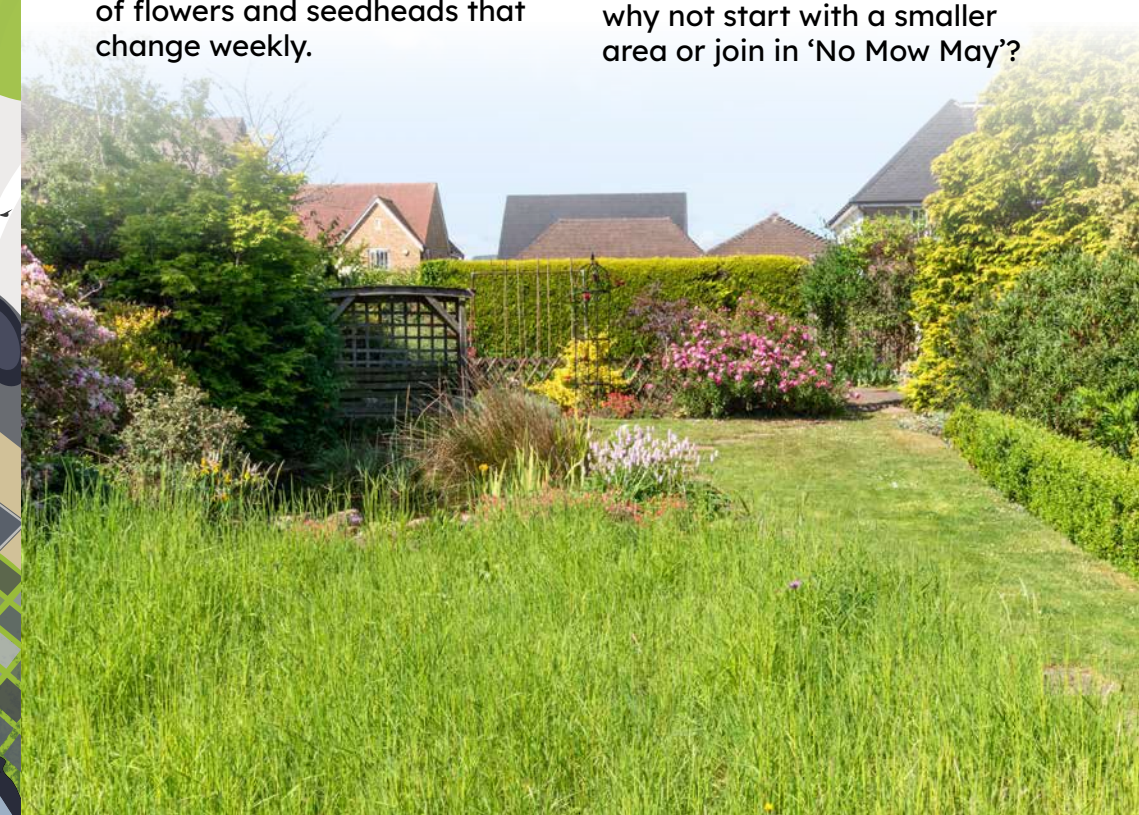
1 Let your grass grow



One of the simplest things you can do is stop mowing your lawn so often! Let the grass grow longer in some areas.

Cutting it a few times a year will offer birds and insects a source of flowers and seedheads that change weekly.

Wildlife needs this variety to thrive. If this feels too radical, why not start with a smaller area or join in 'No Mow May'?



2 Remove hard surfaces



Did you know a quarter of all front gardens are completely paved over? Materials that water can't seep through are contributing to flash flooding.

When designing a driveway or path, consider materials that water can seep through (permeable), such as reinforced grass, gravel or permeable paving blocks

to help store water. Using permeable materials does not require any planning permission, nor does removing old impermeable surfaces.



3 Wildlife hedges



Most hedge plants flower and fruit on the previous year's growth. Cut them every other year, or a proportion of them each year to allow flowering and fruiting.

Don't tidy up too much, leave leaf litter and seed heads to attract hedgehogs, birds, small mammals and insects. Hedges also help improve air quality by intercepting pollution from roads.

Shopping list of native trees or shrubs to choose from:

- Hawthorn
- Beech
- Spindle
- Blackthorn
- Hazel
- Holly
- Field Maple
- Buckthorn
- Rowan
- Crab Apple

4 Disconnect your downpipe



The average UK roof can produce 5500 litres of runoff for every 2.5cm of rainfall. Enough to fill 15 bathtubs. Now imagine a whole street adding that to the sewer system!

One of the cheapest and most effective things you can do to reduce sewer flooding is to disconnect your downpipe.

Connect downpipes to a water butt or rain garden instead. If no surface water from your property enters a public sewer then you may qualify for a reduction in your sewerage charge, for more information search 'surface water drainage rebate.'



The average UK roof can produce enough water to fill 15 bathtubs.



5 Water butt



Water butts are easy and quick to install on most household downpipes. They can capture heavy rainfall, slowing the rate which it floods into our sewer systems.

On average, Essex residents use 8.3 litres per head every day for outdoor purposes. A water butt saves precious fresh water for times of drought and reduces water bills too!



Special Offer!

Essex postcodes can get a discounted water butt and compost bins, for more information search 'Water Butts Get Composting'

6 Rain gardens

A rain garden is a shallow area of ground that receives rainwater from nearby roofs and other hard surfaces during heavy storms. Storm water fills the rain garden, then drains so they are dry when it's dry and wet when it's wet.

By absorbing and storing water, rain gardens slow the rate water enters drainage systems and helps reduce flooding. Rain gardens also do a great job of improving water quality by filtering it through the ground. Rain gardens attract birds, butterflies, bees and bugs.

Your rain garden can connect to other elements such as a water butt, rain chain, stormwater planter, or permanent ponds. The Royal Horticultural Society has many ideas for DIY rain gardens



DIY Rain Garden to-do lists:

Design



- Select location. Place your rain garden in full sun or partial shade in a well-drained area on a very gentle incline (10% or less). If closer than 5m consult an expert to avoid damage to foundations.
- Assess ground. Assess soil texture to know how quickly the soil drains. This can be done by digging a hole and observing how long the water takes to drain. The ideal garden is one that drains at a rate of a minimum of 1.25cm per hour (but will still work with absorption rates of up to 5cm per hour).
- Calculate size. Ideally the size of a rain garden is 20% of your roof area.
- Calculate depth. On a soil that drains at 5cm per hour, the rain garden would need to be 15cm deep, with an extra 6cm below the lowest point. Slower draining soil needs a deeper garden.

Build

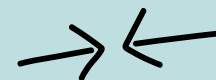


- Use a hose or string to create the shape you want. Dig a saucer shape with a flat and level base. Create a well-compacted raised bank using the soil you dig out.
- Leave a notch in the edge of the garden, with a gravel-filled channel for water to exit.
- Incorporate organic matter to improve soil structure (leaf mould, compost, soil conditioner and grit are all suitable) then back fill to original level.



© RHS / Tim Sandall

Connect



- Dig a small channel a few metres from the downpipe to direct water to the rain garden.

Plant



- Select plants that can tolerate being waterlogged for up to 48 hours, especially at the centre

Shopping List!



Plants that work great for a rain garden: ragged robin, irises, willow, water mints, Iris pseudacorus, Juncus effusus, Carex pendula, Lobelia cardinalis



7. Nature pond

A nature pond can attract lots of wildlife such as bees, butterflies, and frogs. The best shape and size for your pond depends mainly on the size and style of your garden, your DIY abilities and your budget!

Ponds typically use either a rigid moulded liner, or a softer flexible liner which you shape yourself. Rigid liners are easier to install and better for smaller ponds, whereas flexible liners are more difficult to install but have more landscaping potential. For a budget friendly version upcycle an old sink or bathtub.

Water should be 80cm deep to allow for the widest range of plants, ensure a depth of at least 40cm deep to avoid overheating in the summer. Position your pond in partial shade and ensure creatures can get in and out of the pond easily.



Material shopping list:

Liner (either rigid, or flexible), and underfelt or sand

Plant shopping list:

Underwater plants – hornwort or water starwort

Plants with tall stems – water iris

Floating plants for resting stations – water lilies or water hawthorn

Pollinator-friendly plants – lesser spearwort, flowering rush and marsh marigolds



8 Tree pits



Planting around the base of a tree supports a range of plants that provide food and shelter for birds, insects and other wildlife.

Pre-constructed tree pits can also store water after heavy rainfall. Make sure to leave enough space for plant life to grow.



9 Swale



A swale is a shallow channel that slows and moves water to a storage space such as a flower bed or pond.

Swales are easy to create and maintain, provide their own habitat and act as a natural garden feature.

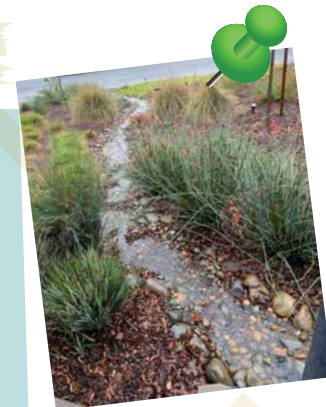
They also filter out pollution from water and help to replenish groundwater.

DIY Swale to-do list:

Design



- Observe the natural flow of water across your property - swales can be used to aid the natural flow or redirect it.
- Think about whether your swale will be linked to another feature.



Dig



- Swales are typically three times as wide as they are deep, so if your swale has a depth of 15cm deep, it should be 45cm wide, and as long you desire.
- Mound the dirt that you dig out on the side.
- Swales must have a level base to allow water to drain.

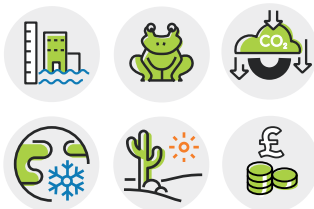
Fill

- **Base** - a layer of gravel is best for drainage but more costly, a layer of leaves and rotting wood also works as a low-cost option.
- **Middle** - if your existing soil drains quickly (at least 1.25cm per hour), it can just be loosened, if it drains slower replace it with 60% screened sand and 40% compost
- **Top** - gravel or woodchips



10 Extreme weather plants

UK summers are forecast to get hotter, drier with periods of more intense rain. Trees can live for decades or even centuries, so planting trees and shrubs that can withstand extreme weather conditions will also create a resilient landscape.



Plant Shopping List!

Plants that tolerate extreme weather: Silverbirch, ginkgo, lavender, ornamental grasses, Mediterranean herbs, foxgloves, Lady's Smock, Verbascum, Geraniums, and agapanthus, fennel



11 SUDS planters



Sustainable Drainage Systems (SuDS) planters are a cross between a normal water butt, and a decorative planter. The units can be purchased or you can create your own from recycled containers.

Special layers within the planter need to be created. Beneath the plants and soil are gravel, grit and a leaky pipe system to

act as reservoirs for runoff. The plants should be able to tolerate wet conditions at times.

You can also add a 'rain chain' bee hotel or hedgehog house, to create a great talking points and a multipurpose habitat.



12 Green roof



A roof size of 6 by 8 metres could produce 30,000 litres of surface water a year!! Green roofs can be a great small scale retrofit projects for sheds, bin stores, and outbuildings but are suitable for any flat or low sloping roof. Plantlife in a green roof can reduce noise, cool buildings and reduce storm water run-off by up to 65%.

Green roofs come in a variety of types, consider how much installation and maintenance time you're prepared to give and your budget. Full gardens with a deeper soil layer will take longer to install and require more maintenance but cost less whereas ready-grown trays will be faster to install, require less maintenance but cost more.



Spend a bit of time researching to find the best fit for your space and your wallet.

Material Shopping List:

Structure and membrane (depends on green roof type),

Filter layer – examples: perlite, leca, and sand, rockwool, crushed tiles or recycled concrete aggregate(if using),

Top dressing – (optional) wood chips or gravel

Growing medium – A soil that's suitable for your plants

Plant list – sedums, succulents like stonecrop and hens and chicks, sedges, groundcovers, wildflower seed mixes (native where possible)

Your neighbourhood and the bigger picture

Changes to your own property can benefit the wider neighbourhood too, linking into bigger landscapes all around you.

Do you have a water channel that runs through your garden? Natural watercourses play an important part in managing flood risk. Keeping watercourses flowing will allow water to drain away from flood hotspots, but installing reedbeds or leaky dams may be a better option to slow the flow if flooding occurs downstream.

Flood risk maps are a brilliant way to understand how water is moving through your community. They can show where ponding may occur in a heavy storm, or where downstream rivers might flood and impact people. For more

information search 'know your flood risk'.

Neighbourhoods can help improve wider water quality and other environmental challenges. Search 'Essex Water Your Future' for more information on water supply challenges in Essex, and what you can do at home. The Local Nature Recovery Strategy shows how your garden could be a critical stepping stone for vulnerable species in the wider landscape. For more information search Essex Local Nature Recovery Strategy. Do your bit by making any of the changes in this book.



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