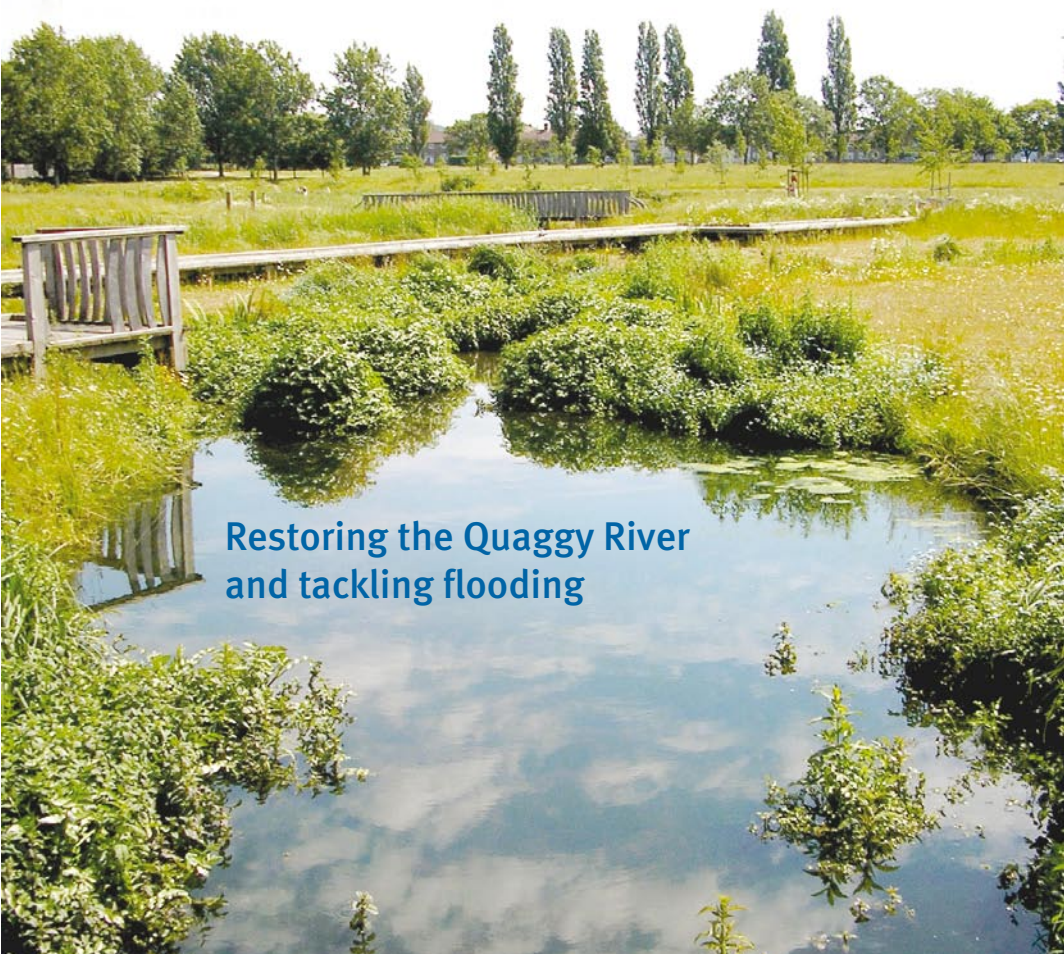


a river reborn



Restoring the Quaggy River
and tackling flooding

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New life for the Quaggy River

The Quaggy River was in desperate need of help. It regularly flooded local homes and businesses. Having lost its flood plain to urban development, the water needed somewhere to go.

The river itself had all but disappeared in places, channelled underground through concrete culverts. In other areas, some residents only knew there was a river there at all when it flooded their gardens.

As a wildlife habitat, there was room for improvement. Until recently, few local people would have thought of the river as an asset, or an amenity.

Now, it is a treasure.

In all, around £18 million has been spent protecting areas of Greenwich and Lewisham from flooding, but also creating parkland, wildlife and wetland zones and adapting gardens with innovative designs.

It was the first time that an environment-led approach had been tried – combining flood risk management with a strategy for river restoration.



Winning a place in the hearts of many local people, this has been a big success – now hailed as a blueprint for future projects elsewhere. It has won awards, it has broken new ground and has helped protect hundreds of premises and thousands of people from flooding.

Quaggy's history of flooding

The Quaggy River travels through the London boroughs of Bromley, Greenwich and Lewisham. It rises in Lockbottom to the west of Orpington and travels 17 kilometres, eventually feeding into the River Thames via the River Ravensbourne.

Urban development on the flood plain over many years meant that when river levels rose rapidly, the water had nowhere to go.



Flooding in Lewisham town centre, 1968

A major event in 1968 flooded 600 homes and businesses around Lewisham town centre. Since then flood events have happened regularly. More recent floods in the early 1990s caused less damage but showed it was a problem that needed to be tackled. In some places, flooding could be expected as often as once every five years.

A sustainable way to tackle flooding

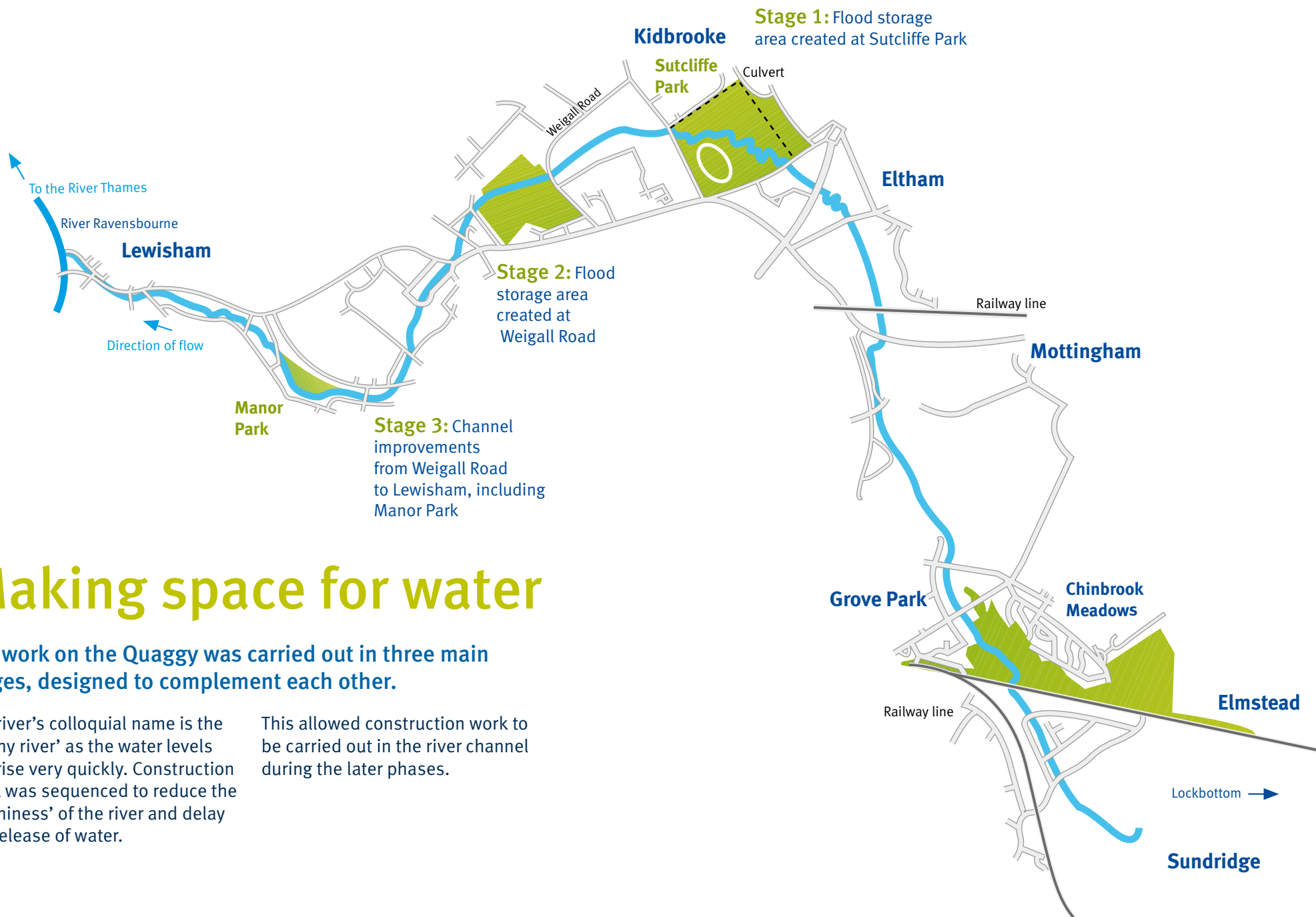
The restoration and flood alleviation scheme focused on the 4.3 kilometre stretch between Sutcliffe Park and Lewisham town centre – an urban area with many homes and businesses close to the river.

But this was also a chance to restore the river, making it more attractive for local people to use, better for wildlife and the environment, and turning it into a valuable resource for local communities.

The scheme's main aim was to provide space for floodwater to go without damaging property.



The scheme reduces flood risk to 600 homes and businesses. The standard of flood protection has been improved from 1 in 5 years (20% probability) to a minimum of 1 in 70 years (1.4% probability).



Making space for water

The work on the Quaggy was carried out in three main stages, designed to complement each other.

The river's colloquial name is the 'flashy river' as the water levels can rise very quickly. Construction work was sequenced to reduce the 'flashiness' of the river and delay the release of water.

This allowed construction work to be carried out in the river channel during the later phases.

Stage 1

Sutcliffe Park

Before the restoration project, the Quaggy at Sutcliffe Park was a forgotten river. It flowed underground through a concrete channel, unnoticed and providing little habitat for wildlife.

By bringing the Quaggy out of its culvert, a meandering river has been reborn.

Now, the river can overflow into the park using it as a flood storage area. And at other times, the park is there for local communities to enjoy. A network of pathways and viewing points criss-cross the park. Within the wetland areas, there are wooden boardwalks making the area more accessible for prams and wheelchairs.

It is a habitat for a huge variety of plants and animals, and features wildflower meadows, wetland areas, reed beds, lakes and ponds.

“The flood alleviation scheme has seen biodiversity enhanced and a new landscape created, all with widespread support from local people.”

Deborah Fox, Head of Standards and Best Practice, Commission for Architecture and the Built Environment.

The river is now a place where wildlife can thrive - from emperor dragonflies and wetland birds, to amphibians and butterflies. Several protected species have now made it their home, including the reed warbler and little grebe.

The park has quickly become an important area of natural beauty and a recreational site for the local community.

It's making a major contribution to the quality of life for local residents. Natural environments encourage regular physical activity, reduce the risk of serious diseases and improve mental well-being.

Surveys have shown that park visits have increased significantly. And people who used the park before, are now staying longer. One in four only started visiting the park after the improvements.

Since opening in 2004, visits to Sutcliffe Park have increased by 73 per cent.



Stage 2

Weigall Road

To provide more space for water at times of flood, we have created a flood storage area at Weigall Road, using the existing sports fields.

These take up to 34,000m³ of floodwater – equivalent to 14 Olympic sized swimming pools – while maintaining the existing sports and recreational site.

The work involved creating a flume in the river to divert floodwater into the sports fields. We have also added reed beds where storm water joins the river to act as a filter to improve water quality.

This part of the project has significantly reduced the need for more extensive works further downstream.



This flume was created in the river to divert floodwater into the sports fields at Weigall Road

Stage 3

Channel improvements from Weigall Road to Lewisham, including Manor Park

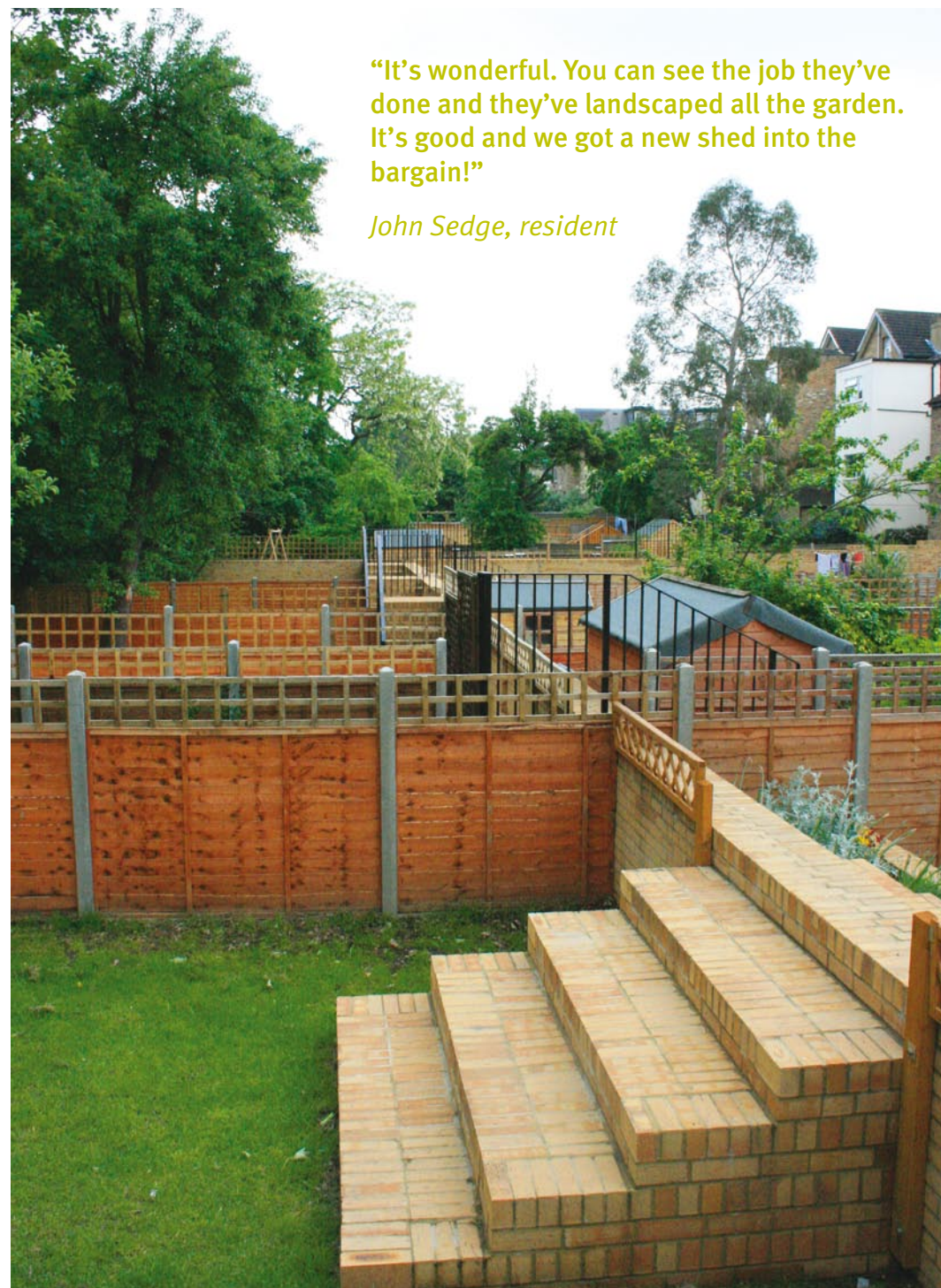
Along the stretch of river between Weigall Road and the centre of Lewisham, the Quaggy runs through rear gardens, beneath roads and along open urban spaces.

Some of the houses close to the river, mostly terraced homes, were at high risk of flooding. Our innovative approach allowed us to integrate flood defences sensitively within people's gardens. These are now set back from the river, recovering land that can be used as part of the flood plain.

The riverbed has also been altered to create a more natural river with meanders and areas of deep and shallow water. Faster and slower flowing areas improve habitat for wildlife. Specialist bird boxes have been built into brick walls to provide nesting sites for grey wagtail and wrens.

"It's wonderful. You can see the job they've done and they've landscaped all the garden. It's good and we got a new shed into the bargain!"

John Sedge, resident



Stage 3 (continued)

Manor Park was redesigned to tackle the Japanese knotweed on site, rather than dumping it in a hazardous landfill site hundreds of miles away. This invasive species can be a huge problem as it grows very quickly and crowds out all other plants and wildlife if left unmanaged.

Also at Manor Park, wetland areas and wildflower meadows have been created. We've updated and improved the play area. And it is now much easier for people to access the river itself.

Working with local groups such as the Quaggy Waterways Action Group (QWAG) resulted in ideas such as distributing waste logs from the sites to resident's gardens. The logs act as a natural habitat for the stag beetle, a protected species.

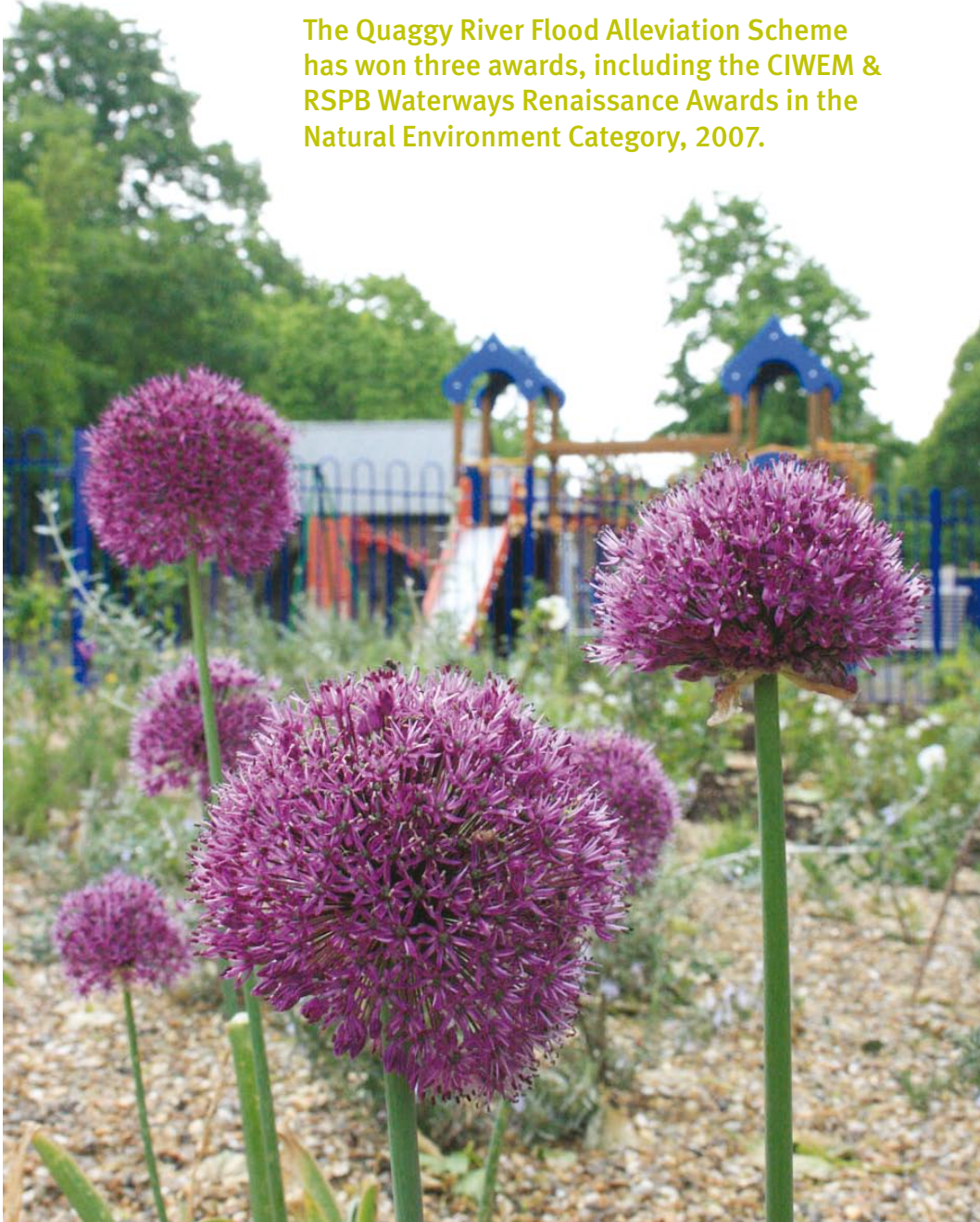
We worked closely with local police officers to design the park to be a safe, crime-free place. Local people can walk dogs, bring children, splash around in the river, or simply catch a glimpse of a kingfisher flitting about near the water.

The restoration work takes account of the effects of climate change. For example, colourful Mediterranean plants in the 'Sunshine gardens' need less water than most indigenous species. They will be better able to cope with hotter, drier summers.

Opposite page:

Habitat for wildlife in the river has been improved by altering the riverbed to create a more natural, meandering river. The gaps in the wall on the left hand side of the picture have been designed for various species of birds and plants to use. As the level of the river rises, they will be filled up with silt to encourage wildlife to colonise naturally. The holes are at different levels to support different species.





The Quaggy River Flood Alleviation Scheme has won three awards, including the CIWEM & RSPB Waterways Renaissance Awards in the Natural Environment Category, 2007.

An outstanding success story

By adding spaces for flood water to go, the Quaggy River scheme provides greatly improved levels of flood defence for Greenwich and Lewisham. Hundreds of properties, including homes and businesses, are now at much lower risk of flooding.

That was the first and most pressing priority, of course, but is far from the only benefit.

The course of the river has been massively improved, with better habitat for wildlife. Residents can now enjoy these transformed open spaces, while those living right next to the river have gardens designed to live with flooding.

Working alongside the community to develop spaces has been one of the most important aspects of the scheme. And lots of people have got involved. Schools and universities have visited Manor Park to learn about ecology, wildlife and flooding. Some schools even got involved in making murals and bird boxes.

“A win, win, win... The three wins being creating a haven for wildlife, an attractive recreation and education environment for people, and flood protection for properties.”

Matthew Blumler, Quaggy Waterways Action Group (QWAG)

Opposite page:

Mediterranean plants in one of the ‘Sunshine gardens’ at Manor Park.

It should be no surprise that the works along the Quaggy River are recognised as an outstanding example of how to create ‘multifunctional space’ – one that provides space for floodwater, while also becoming an important amenity for local people and a habitat for wildlife.

The scheme has won a number of significant awards. Organisations such as the Waterways Trust and the RSPB have all commented on the surprising amount of biodiversity contained within such an urban setting.

Many of the lessons learnt at the Quaggy River are being put forward as examples of best practice to be used elsewhere. These include innovative technological and cost-effective solutions, new designs, and improved team working between a whole range of organisations including councils and community groups.

From the need to control flooding on the river, the Quaggy has been reborn with huge environmental, social and economic benefits. We hope it is now a resource the whole community will share, enjoy and help to protect for future generations.



“The Quaggy has provided a fantastic opportunity to explore and develop best-design practices in urban river restoration. We can learn a lot from this experience and hopefully transcribe the ideas we learn here to other urban rivers in future.”

*Stuart Downward,
School of Earth Sciences and Geography,
Kingston University.*



We have produced a short film to celebrate the Quaggy River Flood Alleviation Scheme.

Contact us for a copy or for more information about this scheme and others. Our contact details are over the page.

To get involved with the Quaggy Waterways Action Group visit www.qwag.org.uk

The works on the Quaggy River have been carried out in partnership with:



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