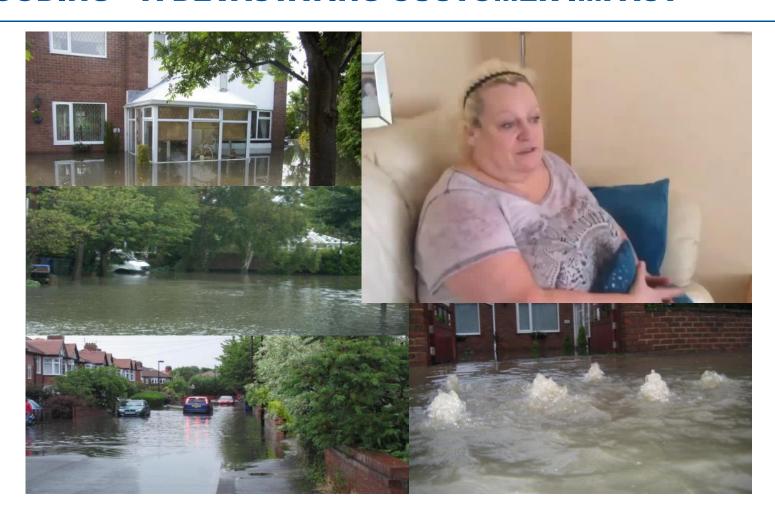


LEADING THE WAY PUTTING BLUE - GREEN CITIES INTO PRACTICE

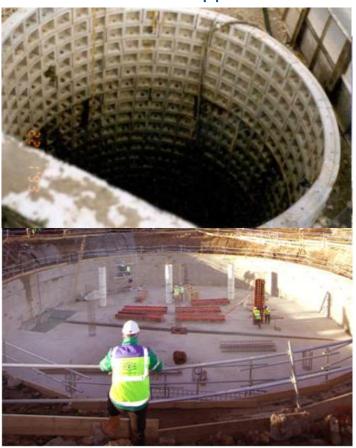
Richard Warneford
Waste Water Director
Northumbrian Water

FLOODING - A DEVASTATING CUSTOMER IMPACT



BEING CREATIVE

Traditional approach



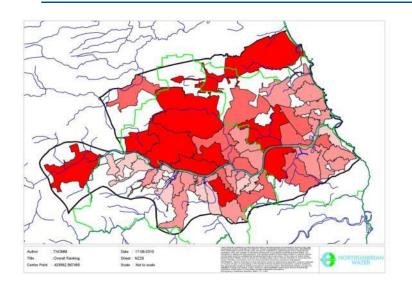
Is there another way?

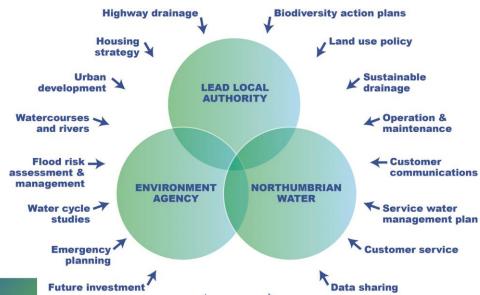
Here is Edward Bear,

coming downstairs now, bump, bump, bump, on the back of his head, behind Christopher Robin. It is, as far as he knows, the only way of coming downstairs, but sometimes he feels that there really is another way, if only he could stop bumping for a moment and think of it.

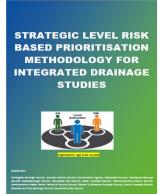


TYNESIDE SUSTAINABLE DRAINAGE STUDY











Sustainable drainage interventions

Public sewers

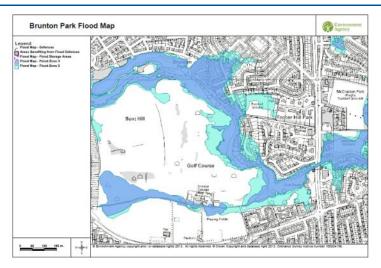
Drainage area planning



ASSESSING THE BENEFITS

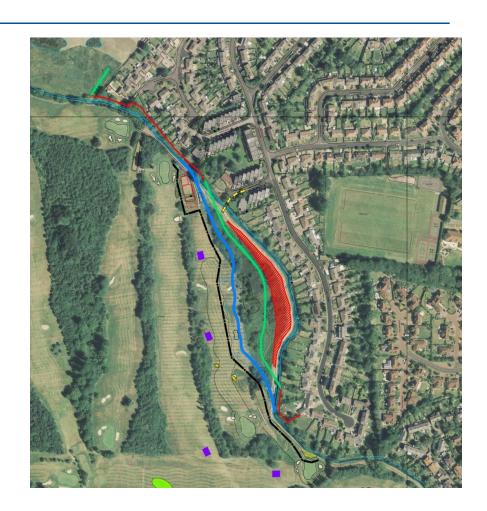
Benefit	Reduces Flooding	Improves Water Quality	Reduces Wastewater Treatment Needs	Facilitates Growth	Reduces Transport Disruption	Increases Recreational Opportunities	Reduces Surface Water Charges	Enhances Habitat	Enhances Amenity	Cultivates Public Education Opportunities
						A.	E			
Phase 1										
Forest Hall Letch Attenuation										
Killingworth Lake Disconnection from Sewer System & Attenuation						X.				
Attenuation behind Chesapeake Packaging										
Above ground attenuation near West Moor Roundabout						A				

BRUNTON PARK - PLANNING AND CUSTOMER ENGAGEMENT







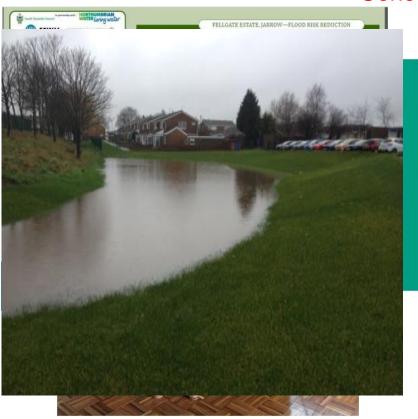


PUTTING BLUE GREEN CITIES INTO PRACTICE – BRUNTON PARK



PUTTING BLUE GREEN CITIES INTO PRACTICE - FELLGATE

Conceptual design



Flood defence bid is praised

BY CHRIS MAXWELL hris,manweligipres wittengomaxwelig

A multi-million pound project to protect flood-hit homes on a South Tyneside estate has been hailed a success - after weathering the barrage of torrential rain that has battered the bor-

Flood defence systems set up by South Tyneside Council, <u>Northumbrian</u> <u>Water</u> and the Environment Agency on the Feligate Estate in Jarrow - which bore the brunt of extreme weather in 2012 - have stood firm in the face of days of persistent and heavy rain-

Delighted ward councillor Geraldine Kilgour says the drainage scheme has given embattled residents vital respite from the ele-

Over recent months, South Tyneside Council and Northumbrian Water have been building new sustainable drainage systems around the Fellgate estate thanks to an £800,000 cash injection from the Environ-

The overhaul followed a £2.5million upgrade of the



Councillors Alan Smith and Tracey Dixon with Northumbrian Water's sewage network controller Linzie Pentleton: Coun Geraldine Kilgour and Ian Davison, project manager from Northumbrian Water.

sewer network last year.

Coun Kilgour, ward member for Fellgate and Hedworth, said; 'It is such a relief and offers peace of mind for the people who live on the estate."

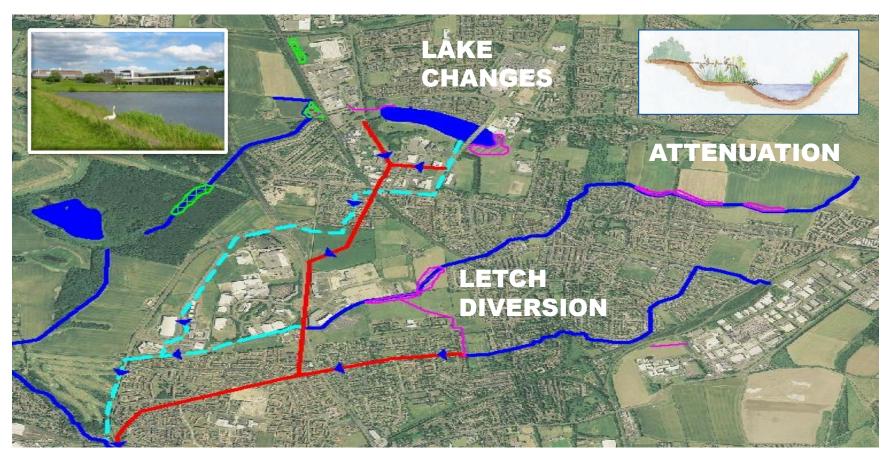
Councillor Tracey Dixon, lead member for area management and community safety at South Tyneside Council, said: "While we cannot guarantee any

area will remain flood free, these measures will help to reduce the risk and give people and property in this area some extra protection and reassurance at times of heavy rainfall and extreme weather."

Weather woe is set to stretch on, with Met Office experts forecasting more heavy showers and rainfall over the weekend.



FURTHER STRATEGIC PLANNING - KILLINGWORTH



SUMMARY

- Innovation
- Do the right thing the right way
- Customers at the heart of decisions and solutions
- Multiple benefits
- Trust, collaboration and enduring partnerships