



## FLOOD DEFENCE



**NRA**

*National Rivers Authority*

## FLOOD DEFENCE

The Severn-Trent Region of the National Rivers Authority covers the catchments of the rivers Severn and Trent. It stretches from the Humber estuary in the north to the Severn estuary in the south and from mid-Wales to the East Midlands - an area of 8,337 square miles (21,600 square kilometres) with a population of eight million.

Among our many other duties the NRA is responsible for flood defence and land drainage. We have a direct responsibility for over 2,300 miles (3,767 kilometres) of main river on which we carry out maintenance work and improvements as necessary.

Flood defence teams are based at our Solihull headquarters and in our four areas - Lower Severn, Upper Severn, Lower Trent and Upper Trent.

## FLOODING

Rivers have evolved naturally to carry rainfall from the land down to the sea. At times of heavy prolonged rainfall they may flood.

Many floods are simply low-lying riverbanks being overtopped with water in well established floodplains such as the Shropshire Plain and low-lying areas around the River Severn in Gloucestershire. These floodplains are mainly low-lying agricultural land that hold overspills of water from the river when flows are high. This prevents it from travelling further downstream where it might badly affect urban areas.

## MAINTENANCE

Flood defences protect more than 30,000 homes and 8,000 commercial properties, as well as 200,000 hectares (500,000 acres) of agricultural land in the region. Our staff are available around the clock to ensure that defences, including embankments, walls, sluice gates, pumping stations and special flood storage areas work properly.

We have:

- 27 miles (43 km) of hard flood defence walls in concrete, steel and brick
- 495 miles (800 km) of soft flood defence earth embankments
- 33 pumping stations to drain the land
- 428 sluices over 2 foot (600mm) in size to control water flow
- 7 flood storage lakes/areas to reduce flood flows

River maintenance, essential to let flood flows pass safely to the sea, includes dredging, weed cutting, tree maintenance and removing blockages that could impede the flow of the river. This is done by both our in-house workforce and contractors.

On average each year we:

- remove 1,000,000 tonnes of silt
- mow and inspect 24,000,000 square yards (20,000,000 square metres) of floodbanks
- remove 30,000 fallen or unsafe trees
- plant over 250,000 trees and shrubs to enhance the environment



## FLOOD EMERGENCIES

We provide a flood forecasting and warning service for unprotected areas on our main rivers where more than four hours warning is possible. This includes more than 23,000 properties. Our 24 hour operations room at our Solihull headquarters analyses readings from our own weather radar system, networks of rainfall gauges, river level gauges and flood measurement stations. When conditions suggest floods are likely we issue warnings to the police so they can alert local authorities, flood wardens and people who are likely to be affected by flooding. This allows damage to property to be minimised, road diversions to be set up and animals to be moved to higher ground.

The NRA flood warning service has three colour coded warning phases - Yellow, Amber and Red - which reflect the increasing severity of the potential flooding.

## NEW WORKS

Our river engineers design and construct flood defences to protect buildings, roads and property and to reduce the risk of farmland flooding. Feasibility studies are carried out in advance to ensure that benefits from the defence would be greater than the cost of construction.

We have a 10 year plan for investment in new defences to combat floods from rivers and tides estimated at around £100 million. This includes a complete survey of the existing flood defences and new plans for defences in urban areas.

All our designs and construction work is carried out with particular regard to fisheries, conservation and recreation. Consultations with local people and nature conservation interests are an important part of this work.

## SCHEMES

Most of our urban areas are protected from frequent and serious flooding and work is going on to extend this protection. Every year about 20 contracts for civil engineering construction work are let.

On the River Severn, between Avonmouth and Gloucester, work continues on a £35 million scheme to improve defences against tidal surges in the estuary. These works are mainly flood walls and earth banks along 43 miles (70 kilometres) of the river. The scheme will take 20 years to complete and will give better protection from flooding to 8,000 people, as well as benefiting 4,695 acres (1,900 hectares) of farmland. Phase 1 was opened in September 1992.



Work was completed in 1992 on the River Tame in Birmingham after 12 years. Over 2,000 homes and businesses have been protected at a cost of £20 million.

The six year River Soar improvement scheme between Quorn, in Leicestershire, and the River Trent confluence is due for completion in 1995. It will have cost £10 million when complete and will protect 600 properties in Ratcliffe, Kegworth, Quorn, Normanton and Sutton Bonnington.

Work has commenced on a £10 million refurbishment scheme at Gainsborough. The existing flood defences are coming to the end of their design life and require major remedial works to ensure continued protection for 500 properties. The EU has promised to contribute an additional £3.6 million for environmental improvements associated with regenerating the river frontage.

## REGULATORY ACTIVITIES

We keep a check on all proposed land developments and advise local authorities of any flood problems these may create. In an average year we comment on 12,000 planning applications. Our aim is to prevent development within the floodplain because of the risk of flood flows being impeded and causing severe problems or damage in future floods.

Studies are carried out to identify how to cope with planning problems and enforce land drainage byelaws along the main rivers. Anyone wishing to carry work out on the river must have our permission first.



## FOR FURTHER INFORMATION

Contact the NRA at the appropriate area office listed below.

### UPPER TRENT AREA:

Sentinel House, Wellington Crescent, Fradley Park,  
Lichfield, Staffs, WS13 8RR  
Telephone: (01543) 444141

### LOWER TRENT AREA:

Trentside Offices, Scarrington Road, West Bridgford,  
Nottingham, NG2 5FA  
Telephone: (01159) 455722

### UPPER SEVERN AREA:

Hafren House, Welshpool Road, Shelton,  
Shrewsbury, SY3 8BB  
Telephone: (01743) 272828

### LOWER SEVERN AREA:

Riversmeet House, Newtown Industrial Estate,  
Northway Lane, Tewkesbury, GL20 7JG  
Telephone: (01684) 850951

THE NRA IS ON CALL 24 HOURS A DAY, 7 DAYS A WEEK.  
IF YOU SEE SIGNS OF WATER POLLUTION, ANYWHERE, AT ANY TIME  
AND FROM ANY SOURCE, CONTACT THE NRA IMMEDIATELY ON:

**0800 80 70 60**



ENVIRONMENT AGENCY

NATIONAL LIBRARY &  
INFORMATION SERVICE

#### HEAD OFFICE

Rio House, Waterside Drive,  
Aztec West, Almondsbury,  
Bristol BS32 4UD



**NRA**

National Rivers Authority  
Severn-Trent Region

Sapphire East, 550 Streetsbrook Road,  
Solihull, West Midlands B91 1QT  
Telephone: 0121-711 2324



Awarded for excellence

Environment Agency  
Information Centre  
Head Office

Class No .....

Accession No .....

ENVIRONMENT AGENCY



055535