Environment Agency

a new beginning

Bristol Avon Local Flood Defence Committee

Handover Document March 2005

1 River Trym, Cribbs Causeway
2 The Bullpit, Bradford-on-Avon
3 Committee meeting at Frome December 2004. Phil Winrow (Regional Finance Manager); Simon Foyle (Team Leader Flood Defence Improvements); Dave Crowson (Team Leader Development Control); Tony Owen (Area Manager); John Taberham (National Capital Programme Management Services); Charles Price; Michael St John; Bob Howells; Tony Hicks; John Matthews (Chairman); Humphrey Temperley (WRFDC Chairman); Sarah Harding (Regional External Relations); Gerry Curran; Niel Curwen; John Thomson; Alan Aldous; Ken Tatem (Team Leader Flood Defence Strategic Planning); Richard Symonds (Flood Defence Manager); Tony Phillips OBE.

Cover: Pulteney Weir, River Avon, Bath

Bristol Avon Local Flood Defence Committee

A new beginning

A new regional flood defence committee is to take over the work of the Bristol Avon Local Flood Defence Committee (BALFDC). This booklet celebrates the Local Committee's many achievements and looks at the challenges facing its successor.

The Committee, which has been under the Environment Agency's wing since its formation in 1996, can trace its history of responsibility for the Bristol Avon's flood defences back to 1932. In 1989 the Bristol Avon Local Land Drainage Committee became the Bristol Avon Local Flood Defence Committee. The Local Land Drainage Committee had in its turn taken over duties from the Bristol Avon River Authority on the formation of Wessex Water Authority in 1974. The 1963 Water Resources Act had led to the Bristol Avon River Authority taking over from the Bristol Avon River Board in 1965. The Board had come into being in 1950 when it added fishery and pollution prevention duties to the role of the Bristol Avon River Catchment Board formed in 1932.

A single tier of flood defence committees is being set up following the 2003 Flood and Coastal Defence Funding Review. A regional committee for Wessex - the Wessex Regional Flood Defence Committee (WRFDC) - will be responsible for Bristol Avon and the rest of the region.

The Committee's work would not have been possible without the support of the Environment Agency's Flood Defence staff, including the Emergency Workforce (now Operations Delivery). We thank them for their efforts and urge the new committee to continue supporting their work.

Flood risk management


By Brook at Widdenham

Flood defence work has traditionally focused on reducing flooding by building, operating and maintaining defences. Panel 1 (page 5) highlights local policies that the BALFDC commends to the WRFDC.

The Committee has now moved from funding defences in reaction to events to a more strategic investment policy. This follows the shift to Flood Risk Management by both the Environment Agency and the Department for Environment, Food and Rural Affairs (Defra).

Flood Risk Management means that the results of flooding can be reduced by not only built defences but also:

- better flood forecasting and warning;
- emergency planning;
- land management;
- raising awareness.

These activities are detailed in this booklet.

The Committee is pursuing its new strategy by starting work soon on the Bristol Avon Catchment Flood Management Plan.

Flood maps

Flood risk maps have been given to local councils so they can reflect the risk in their emergency planning and development control policies. Similar maps are on the Environment Agency's website, www.environment-agency.gov.uk.

The maps are part of a strategy to give the public better information about flood risk and provide an initial assessment of risk. The Committee supports a national modelling programme that will produce more detailed flood risk data.

Bristol Avon Local Flood Defence Committee

Panel 1

BALFDC policies recommended to WRFDC

- Continue to work closely with Planning Authorities to ensure no development in flood plain and that development outside flood plain does not increase flood risk elsewhere.
- Maximise opportunities to obtain flood risk and environmental improvements from new developments.
- The prolonging of the life of existing assets through programmed maintenance is preferable to allowing deterioration requiring asset replacement.
- The Committee has been at the forefront of promoting the consideration of catchment-wide solutions for flood risks, and supports the Catchment Flood Management Plan approach to producing policies for the future management of flood risk.

Widcombe infants at Bath flood awareness day

Flood warning

The Committee is overseeing a big improvement in the flood warning service. A programme to raise public awareness is helping people help themselves. It is also reducing unrealistic expectations of what the Environment Agency can do – many people think the Agency can stop flooding altogether.

The Environment Agency works with local communities in flood risk areas which ensures their needs are understood and catered for. Flood warden schemes are being set up and some are already operating.

Emergency plans

Flood emergency response plans must be kept up to date. The Environment Agency helps other authorities review their emergency plans. Local flood warning plans have been implemented and joint practices held to test the plans so that we can all work well together in a real event.

Flood damage Pensford July 1968

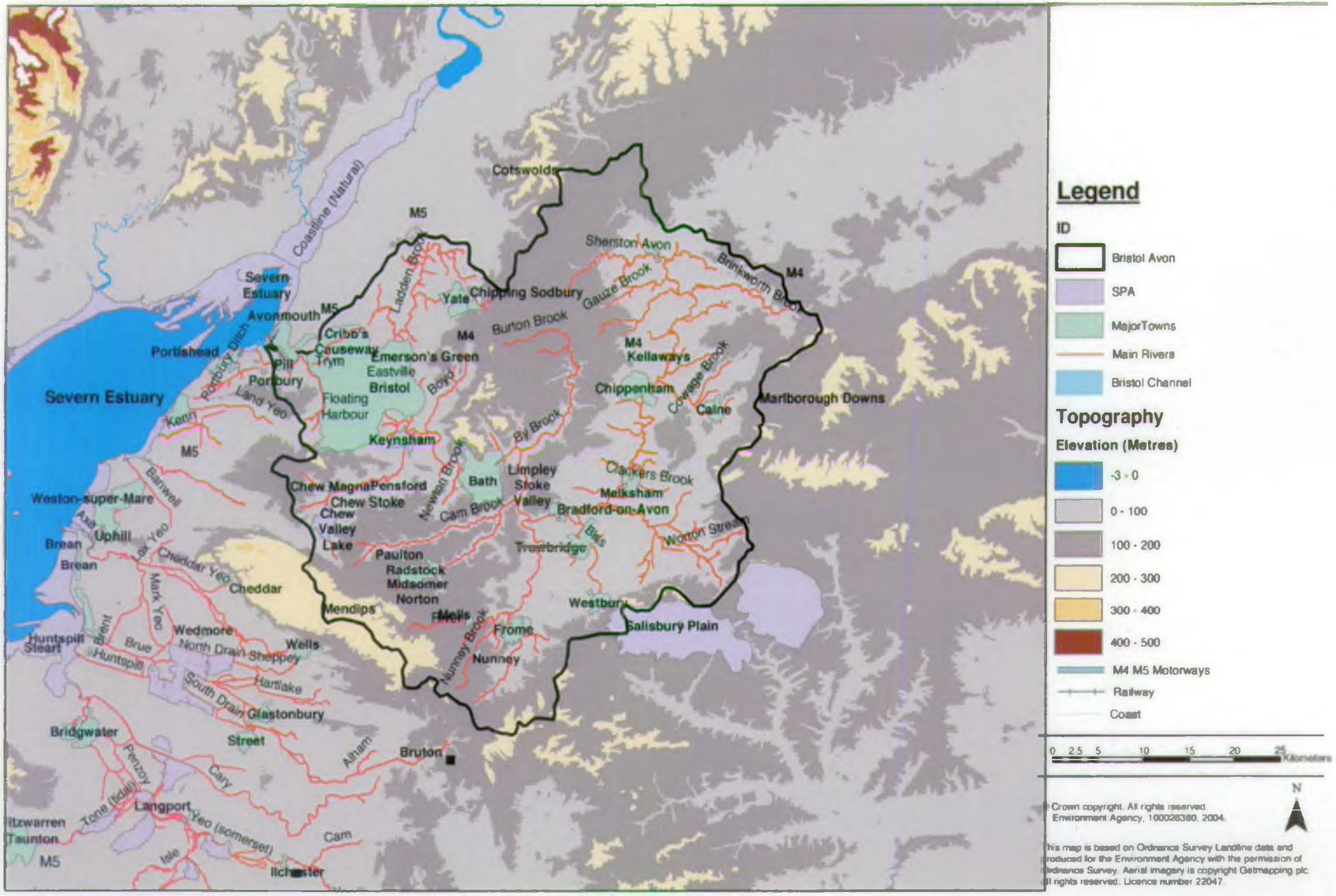
The Bristol Avon drainage area

The Bristol Avon area is the catchment of a single river and its tributaries. The River Avon rises in the Cotswolds in the north of the catchment and flows east through a varied rural landscape, and the historic market town of Malmesbury, before turning south.

After passing through the market towns of Chippenham and Melksham, and joining with the tributaries draining the west face of the Marlborough Downs, the River Avon turns west towards the world heritage city of Bath. Tributaries along Salisbury Plain and the east Mendips add to the flow before it cuts through the steep Limpley Stoke valley, meandering in a mainly north-west direction within its engineered section through Bath and on to the industrial and commercial centre of Bristol, picking up the steep Mendip stream of the River Chew which in 1968 recorded the worst floods in living memory in the catchment.

At Bristol, the river is met by the second highest tidal range in the world before it cuts through the Avon Gorge to the sea at the industrial site of Avonmouth. It bypasses its original route, now the tide-free Floating Harbour, in a new cut created in the 1820's. The River Frome draining south from the Cotswolds is culverted for some 2.5 km under the main commercial site of Bristol, emerging into the Floating Harbour. The River Avon is navigable between Bath and Avonmouth. Many of the market towns on the M4 corridor are expanding, and Bristol itself has grown to the boundaries of the M4 and M5. The catchment is prone to significant rainfall from storms mainly over the Mendips from the south west.

Pulteney Weir, River Avon, Bath



Map showing the boundary of the Bristol Avon Local Flood Defence Committee

Key details

The following are the key details relating to the area covered by the Committee:

Total area 217600 Ha	
Area at risk of flooding	10000 Ha
Of which: agricultural land	7500 Ha
housing	7904 No.
industry	72 Ha
Major infrastructure	
motorway	74 km
'A' class roads	396 km
main railway	226 km
Sites of environmental interest	
International environmental sites (inc.SACS, SPA, RAMSAR)	1700 Ha
National environmental sites (inc. NNR, SSSI)	5000 Ha

River flood defences for which the Committee is responsible:

Watercourses (main river)	752 km
Pumping stations	2 No.
Major gates/Control structures	12 No.
Major urban flood relief schemes	15 No.
Flood relief tunnels	3 km

The Table below shows major urban locations and their properties at risk:

Name	Total Properties	Properties in the 1% risk floodplain	Proportion (%)
Bristol	193218	1215	0.63
Bath	36394	758	2.08
Chippenham	13830	329	2.38
Bradford-on-Avon	3761	213	5.66
Melksham	6259	172	2.75
Yate and Chipping Sodbury	12176	170	1.40
Pill and Easton-in-Gordano	1902	159	8.36
Chew Magna	351	73	20.80
Keynsham	6505	55	0.85
Midsomer Norton and Radstock	7466	47	0.63
Nunney	303	41	13.53
Pensford	182	38	20.88
Calne	5684	35	0.62
Frome	10475	27	0.26
Warmley and Oldland	9856	27	0.27
Chew Stoke	243	26	10.70
Trowbridge	13054	17	0.13
Mells	147	14	9.52
Westbury	4713	14	0.30

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Panel 2
Issues for WRFDC consideration

The following are schemes in the BALFDC area whose feasibility will require early determination

An initial study of the tidal risk to storage in the Floating Harbour has assessed no immediate need for action in the light of climate change. However, the Bristol Avon Catchment Flood Management Plan needs to consider the results in conjunction with the risk from fluvial flows in the River Frome and the River Avon, and reconsider whether early action will be needed.

A broadscale model of the Bristol Avon catchment is being produced to help improve extent and accuracy of flood warning. Recommendations for new level gauges should be considered for priority action.

The overall hydrometric gauge network development is being reviewed for improvement for flood warning, operations and asset system management.

The BALFDC has invested heavily in recent years to ensure flood risk areas in Bath are managed. In addition to works to the sluices at Twerton, they have looked at the flood risk implications of Pulteney weir and gate. A detailed study of the extent of flood risks to Bath will lead to a proposal on the way forward in March 2005.

Further work is required to determine the structural condition of the Bristol Frome culverts. Major repairs could be a priority within the next five years, and decisions need to be made on the responsibility for these.

The Committee has only just begun considering those flood risk locations which are vulnerable to a 'Boscastle' type event. These are being identified, including vulnerable camp and caravan sites, and then there will be a need to consider resulting impacts and what if anything can be done to minimise them.

Floodplain profiling Rodden Brook, Wallbridge, Frome

Planning guidance

The Committee has tried to ensure that flood risk to development is minimised. It has done this by promoting the Government's guidance on development in flood risk areas, and by giving advice and help on flood defence issues. The Committee has stressed that development should not take place if it:

- creates an unacceptable flood risk that could endanger lives, damage property or mean inappropriate spending on repairs;
- creates or worsens flooding elsewhere;
- prejudices future work needed to reduce flood risk;
- harms the environment.

Natural floodplains must be kept and, where possible, restored so that flood water can be stored.

The Committee has always concentrated on development issues, the impact of increased run-off as well as development in flood plain. The CFMP will need to consider impacts on the whole catchment, but already there are strategies considering impacts on the two most pressurised catchments, River Biss and Bristol Frome.

River Biss improvements at Cradle Bridge, Trowbridge

In the past, the policy has been to accept funding for schemes and commuted sums for maintenance. This does not suit the current financial rules as well as using developer's money to fund relevant flood risk studies. Planning Policy Guidance Note No.25 requirements reinforce this approach. The Committee has a good record of ensuring development is in the right place, and the future of flood risk management in the catchment is dependent on this continuing.

Success stories

Particular examples of working with others on development sites are;

- Trowbridge
- Calne
- Melksham
- Cribbs Causeway
- Emersons Green.

At these sites significant habitat gains have been achieved as well as flood defence benefits. Other major development negotiations continue at Redcliffe in Bristol and Lambridge and Central Bath.

Managing Bristol Avon's flood risks

1982 floods at the confluence of the By Brook and River Avon at Bathford

Twerton Sluice, River Avon, Bristol

A programme to regularly inspect the condition of all main rivers and their assets has been produced based on risk. This has identified assets requiring work to ensure their integrity under severe conditions. Regular maintenance is carried out on the flood defences and channels under Environment Agency ownership, or where responsibility is accepted, so that they operate at optimum efficiency. Where defence standards are not at the appropriate level the Committee considers and promotes improvement works, where they can be demonstrated to be economically, technically and environmentally sound.

Most Bristol Avon urban risks have had protection schemes, where they could be economically justified under Treasury Rules. Bradford-on-Avon is an example of where despite several attempts it has not proved possible to progress a justified scheme.

Recent expenditure has been concentrated on refurbishing or replacing assets at Kellaways, Twerton, Melksham, Chippenham and Eastville. Recent studies of flood risks in a number of locations including Calne, Ashton Vale and Bath have highlighted that standards of protection currently offered do not justify investment in further improvement. A package of measures including increased maintenance, flood warning, works from the local levy, and seeking opportunities for investment from partners has been adopted as the way forward.

The majority of Bristol Avon's main rivers have been modified by man. Most of this was through early industry, weirs for mills for wool and paper in the upper reaches, and brass, copper etc towards Bristol. Extensive flood improvements from 1932 onwards included significant channel remodelling, e.g. Chippenham to Malmesbury. Since the 1990's, the Committee has been concerned to try to return rivers to natural conditions when carrying out works. This has not always been possible as other river users have grown used to the current situation. Notable successes on the Biss, the Brinkworth Brook and at Kellaways have been few, but for the good of the river environment, future opportunities should be sought.

Panel 2 (page 10) highlights imminent schemes the BALFDC recommends the WRFDC to support in the future.

The Flood and Coastal Defence Funding Review outcomes announced in March 2003 included the transfer of Critical Ordinary Watercourses to the Environment Agency. This will entail an increase of 68.3 km on the length of main river by 2006. The WRFDC needs to make allowance for the consequent increase in maintenance and operations, and the possibility of the need for capital schemes on these new reaches.

The Committee supports the Environment Agency in its approach to health and safety as an important override to other considerations. Over the last five years, a significant amount of work has been put into ensuring the public's safety at all our structures.

Funding

Debris collected at Town Bridge Bradford-on-Avon

In undertaking the activities covered in this booklet the Bristol Avon LFDC recognises the following priority sequence for the use of the available funds. In particular, expenditure necessary to satisfy a statutory requirement would take priority.

1 Regulatory activity
- consenting
- enforcement
- development control

2 Flood forecasting and warning

3 Flood risk mapping to support 1 and 2 above

4 Emergency response - e.g. operate structures and clear channels

5 Supervisory role

6 Investment justification

7 Maintenance of existing flood defences to existing levels of service

8 Renewal of existing flood defences to existing levels of service

9 Improvements to flood defences above the existing level of service
- for existing defended areas
- for new areas

A changing climate

Cumberland Basin, Floating Harbour, Bristol

Where schemes do exist, decisions will need to be made in the future on whether and when to improve to maintain the level of protection against predicted increases in risk from climate change. It has been shown that climate change has a bigger impact on risks than other land use changes, including development. Major urban centres such as Bath, Bristol, Chippenham, Frome and Trowbridge need regular reassessment. The Committee awaits the production of the Bristol Avon Catchment Flood Management Plan (CFMP) to produce policies to support this.

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