



# **RIVER STOUR CATCHMENT MANAGEMENT PLAN**

*ANNUAL REVIEW*  
**1994**



*National Rivers Authority*

**SEVERN-TRENT REGION  
UPPER SEVERN AREA**

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Copies of the River Stour Final Plan (December 1993) and Summary leaflet for the River Stour Catchment Management Plan (December 1992) are also available. If you or your organisation need further information or copies of any of the above documents, please contact Mrs D Murray (Catchment Management Planning Officer) at the above address or by telephone on Shrewsbury (01743) 272828.

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## CONTENTS

	Page No
Section 1.0 Vision for the Catchment	1
Section 2.0 Introduction	1
Section 3.0 Summary of Progress	3
Section 4.0 Monitoring Report	10
Section 5.0 Future Reviews	21
Appendix 1 Current Status of Development Plans	21
Appendix 2 Note on implementation of new River Water Quality Schemes	22

### EXECUTIVE SUMMARY

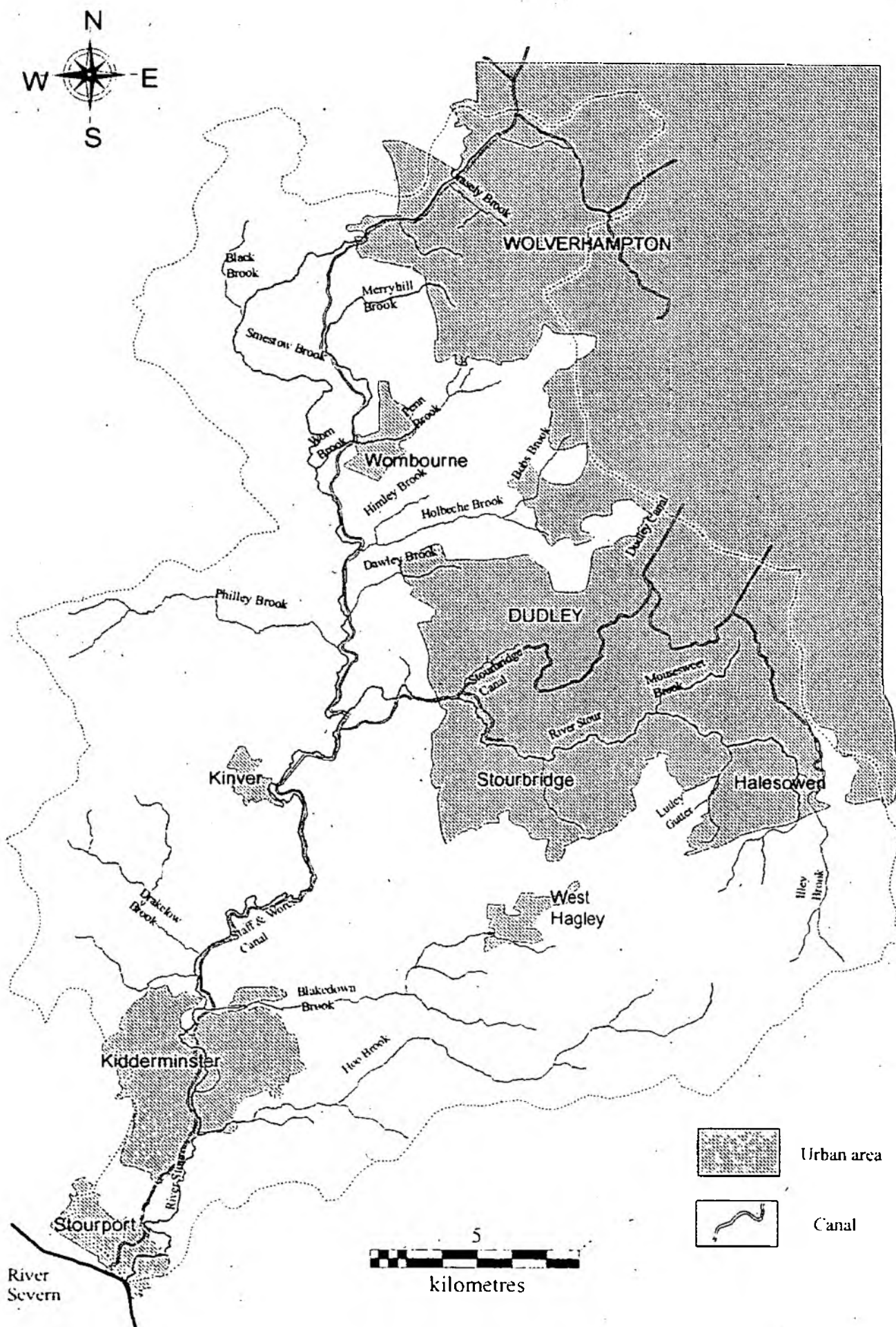
This Annual Review summarises the progress made in achieving targets to improve the water environment in the Stour Catchment in the year since publication of the Final Plan in December 1993. There has been good progress generally by all responsible parties in carrying out the actions planned for this year. It is particularly pleasing to note that many actions have been carried out by organisations working in collaboration with others.

Out of 54 actions planned for this year, 6 actions have been completed, one has been deferred and the other 47 (including ongoing actions) are on target. 3 actions have been brought forward to start ahead of the anticipated schedule, and one has been completed ahead of schedule. Of particular note has been the completion of Severn Trent Water Ltd's sewage sludge incinerator at Roundhill, the good progress made in reducing discharges of pesticides from the carpet industry in Kidderminster, and progress in conservation work alongside river banks.

Improvement of water quality is a major objective in the Stour Catchment, and a key event in 1994 was the announcement of the water-companies' five year capital programme (AMP2). This will result in major expenditure in the catchment during 1995-2000, although in some cases money allocated to ensure compliance with EC Directives may not be sufficient to upgrade watercourses as identified in the Final Plan. Expenditure under the discretionary scheme is expected, however, to allow 34.3 km of high priority watercourse upgradings to proceed, with a probable improvement in a further 11km.

The tables in Section 4.0 form an integral part of this review, and should be referred to for a summary of progress on each action.

# The River Stour Catchment



## 1.0 VISION FOR THE CATCHMENT

The NRA's vision for the Stour Catchment is to restore streams and rivers to a sustainable condition closer to a natural state by:

- addressing poor water quality and the problems caused by overabstraction and flooding.
- extending green river-corridors through urban areas.
- increasing easily accessible water based amenities and recreation.

## 2.0 INTRODUCTION

The National Rivers Authority is undertaking a programme of Catchment Management Plans (CMPs). CMPs allow the NRA to balance all the competing requirements and interests of users of the water environment. The process realises the environmental potential of a catchment in terms of water quality, water quantity and physical features. The first stage is production of a Consultation Report. This outlines the Issues within a catchment and options for their solution. Following a period of consultation, a Final Plan is produced. This includes an action plan for improvements to the water environment. It outlines areas of work and investment proposed by the NRA and others.

An important part of the CMP process is to monitor the Final Plan to ensure that targets and actions are achieved and that the plan still addresses all significant issues in the catchment in an appropriate manner. This report summarises the progress made since the publication of the Final Plan in December 1993. It is recommended that this report is read in conjunction with the Final Plan.

### 2.1 The Catchment

The River Stour drains a surface area of 373 square kilometres and lies mostly within the counties of Hereford and Worcester, Staffordshire and the West Midlands. The Stour flows west from its source in the Clent Hills, towards Stourton and its confluence with the Smestow Brook, before flowing south to join the River Severn at Stourport. The River Stour and its main tributaries total 214 kilometres in length.

A section of the Staffs & Worcester Canal runs south through the catchment, parallel to the Smestow Brook and then the River Stour, linking the Shropshire Union and Birmingham Canal networks with the River Severn.

To the north and east, the catchment overlaps the West Midlands conurbation, and includes a large proportion of the Black Country. Historically, the area has been a significant industrial and residential centre, and still has important light engineering and manufacturing industries. In recent years, technology-business parks and out of town shopping centres have been established.

Kidderminster, in the lower reaches of the River Stour, has a number of large carpet factories, a sugarbeet processing plant and other light industrial works.

Intensive arable agriculture dominates the rest of the catchment with localised areas of pasture, particularly on the urban fringes. Satellite photography shows 35% of the catchment area is arable land, over 29% is urban, and 18.5% grassland.

## **2.2 Key Objectives of the River Stour CMP**

Key objectives are to:-

- Minimise the adverse effect of urban development on the water environment.
- Improve water quality in the 35% of the catchment's rivers which fail to comply with their quality objective.
- Progressively improve and maintain water quality and the water environment throughout the catchment.
- Ensure that development of waste disposal sites or redevelopment of contaminated land does not compromise groundwater quality.
- Encourage more efficient use of existing groundwater sources and ameliorate low flow patterns.
- Increase biological diversity of the water environment and improve site management of wetland SSSIs and Prime Sites.
- Improve damaged landscape areas related to the water environment and improve records on relevant archaeological sites.
- Improve fish stocks throughout the catchment.
- Increase scope for recreational uses within the catchment.
- Implement improvement scheme to alleviate flooding in Kidderminster, pending redevelopment of riparian land.
- Implement schemes to alleviate periodic flooding at a number of sites in the catchment.

## **2.3 Assessment of the Catchment and Major Changes since Publication of the Final Plan**

The catchment has been assessed to review the relevance of the actions in the Final Plan. Since December 1993 there have been few major changes in the catchment that have significantly affected the CMP, with the exception of the status of a number of Local Authority Development Plans.

The actions in the Final Plan are therefore still considered appropriate, and it has not been necessary to rewrite the CMP. Where any major changes have been made to actions, costs or timescales, these have been highlighted in bold text in the tables in Section 4.0.

There have been considerable changes in the status of Local Authority Development Plans in the catchment since the publication of both the Consultation Document (Dec. 1992) and the Final Plan (Dec. 1993). Progress has been made on Unitary Development Plans, district wide Plans, and reviews of County Structure Plans. The current status of Development Plans within the catchment area is summarised in the table in Appendix 1.

The NRA encourages the inclusion of policies in Development Plans which reflect its concerns and responsibilities. An average of 90% of NRA advised policies to protect the water environment have been included in current versions of the above Local Plans.

The draft Regional Planning Guidance (RPG) for the West Midlands was published in September 1994, and will supersede the previous Strategic Guidance (PPG 10 1988) for the West Midlands Metropolitan area. The RPG now includes the Shire Counties of Hereford and Worcester, Shropshire, Staffordshire and the West Midlands Metropolitan County, and covers the period to 2011. Its primary purpose is to set the framework for Development Plans in the Region and it will have long term implications for land use within the catchment. The NRA, as a consultee, has had an input to the RPG during 1994. The final version is expected early in 1995.

The RPG may lead to Development Plans being amended to reflect changed housing requirements up to 2011. There is likely to be more emphasis on the re-development of existing urban sites in the catchment, and development pressure may occur in some areas as a result of policies for availability of public transport. The urbanised eastern part of the catchment is now eligible for Objective 2 grant funding under European Union legislation.

In March 1994, the Birmingham Western Orbital Route was given Priority 1 status by the Department of Transport. The road will improve access to potential growth areas and is likely to have an influence on future development in the catchment. The Kidderminster/Blakedown/Hagley Bypass is now a longer term scheme and further movement will depend on the progress of the Western Orbital Route.

### **3.0 SUMMARY OF PROGRESS**

Out of 54 actions planned for this year, progress was on target for 47 actions and 6 were completed (Actions B4b, C2b, D2c, F4c, F6, G2). One action has been deferred (B13c). 4 items have either been brought forward or completed ahead of the anticipated date stated in the Final Plan (F3, F4b, F6, J). Many of the actions have involved organisations working in collaboration with others.

Of particular note has been the completion of Severn-Trent Water Ltd's sewage sludge incinerator at Roundhill, and the good progress made in the reduction of discharges of pesticides from the carpet industry in Kidderminster. The 3 actions that have been

brought forward to start ahead of the anticipated schedule include plans by English Nature to develop a local nature reserve by the River Stour in Kidderminster, and a scheme by Wolverhampton MBC and Severn Trent Water Ltd to address flooding problems in the Wolverhampton area. An action to improve NRA records on archaeological sites has been completed ahead of schedule. To assess the implications of deferring Action B13c (removal of contaminated sediments from the Staffs and Worcs Canal), the NRA is to carry out additional monitoring (new Action B13d).

For details of progress for each action in the Final Plan, please refer to the 'progress' column in the tables in Section 4.0. **Notable achievements/disappointments and key events are summarised in bold under each issue sub-heading below.**

### 3.1 Issue A: Impact of Urban Development

*Over 29% of the catchment area is urban. The potential impact of urban development on the water environment, and the importance of the inclusion of appropriate policies in Local Authority Development Plans, was highlighted in the Final Plan.*

- **Publication of the NRA's 'Guidance Notes for Local Planning Authorities on the Methods of Protecting the Water Environment through Development Plans', in January 1994.** The document includes a set of statements relating to the broad headings of water quality and water resources, flood defence, fisheries, conservation, recreation and navigation in the river corridor, mineral workings and waste disposal. It is hoped that the objectives will be substantially replicated in each local authority's land use plans insofar as they are appropriate. The document was widely distributed to local authorities during the early part of 1994 (Action A1a).
- **Inclusion of an average 90% of NRA proposed policies to protect the water environment in current versions of Development Plans in the catchment area.** This success is due to clarification of the NRA's objectives as defined in the above document, and to continued liaison with, and the co-operation of, local planning authorities. Of particular note since production of the Final Plan, NRA policies have been included in Dudley Unitary Development Plan, and the NRA has recently had significant inputs into Public Local Inquiries for South Staffs, Wyre Forest and Bromsgrove Local Plans. The current status of Development Plans in the catchment area is summarised in Appendix 1 (Action A1a and Action Kf in respect of flood plain policies).

### 3.2 Issue B: Poor Surface Water Quality

*The CMP identified an underlying problem of poor surface water quality in the Stour catchment, with nearly 35% of the catchment's rivers failing to comply with their quality objective. The River Stour and Staffs & Worcs Canal drain both rural and highly urbanised areas in the West Midlands. Water quality has been historically poor or bad because of discharges of large volumes of treated sewage effluent and urban drainage into watercourses offering only limited dilution.*

- **Good progress has been made in the progressive reduction of discharges of pesticides from the carpet industry in Kidderminster.** In 1990, levels of

permethrin in the Stour below Kidderminster sewage works averaged 75 nanogrammes per litre (ng/l), well above the Environmental Quality Standard (EQS) of 10 ng/l. The action plan drawn up in 1993 between the Carpet Manufacturers Association and Severn Trent Water Ltd., and agreed with the NRA, set a target date of December 1995 to achieve compliance with the EQSs for permethrin and other mothproofing agents. Major progress has since been made in reducing discharges of the mothproofing agents, and the biology of the river has improved. The sewage works is now discharging permethrin at levels which allow the EQS to be met most of the time (Action B4b).

- **The water companies' five year capital programme (AMP2), was announced in July 1994. This will result in major expenditure in excess of £50 million during 1995-2000 at a number of sewage treatment works in the Stour catchment.** In allowing water companies to increase prices to finance expenditure, the DOE gave top priority to meeting present and future statutory obligations, including EC Directives for Freshwater Fisheries and Urban Waste Water Treatment. Lower priority was given to the schemes to achieve River Quality Objectives (RQOs). In the Stour Valley expenditure includes £40 million allocated to four sewage treatment works (Freehold, Caledonia, Roundhill and Kidderminster) under the discretionary scheme. This expenditure is expected to allow 34.3km of the identified RQO upgradings to proceed within the next five years (Actions B2, B3, B4), with a probable improvement in a further 11km. In some cases (18.7km), money allocated to ensure compliance with EC Directives may not be sufficient to upgrade watercourses as identified in the Final Plan (Actions B6, B8, B10, B11). For 2.5km of watercourses identified in the Final Plan, no money has been allocated (Actions B7, B9). Details for individual stretches of watercourse are given in the table in Section 4.0.
- **Installation of a Continuous Water Quality Monitor (CWQM) on the River Stour downstream of Kidderminster at Wilden.** This is the first such monitor (other than intake protection) to be installed in the Upper Severn Area. As the name suggests, CWQMs provide a continuous record of quality in the watercourse. The increased sampling frequency provides a much more accurate picture of what is happening in the river than can be gained by manual sampling. This monitor will be used in conjunction with a new monitor at an existing site at Holt Fleet to assess the impact of the River Stour on the River Severn (Action B15c).

The year has also seen the introduction of more national pollution prevention initiatives aimed at industry in general eg: 'Pollution Prevention Pays' video, and Pollution Prevention Guidelines including among others No.11 (Preventing Pollution on Industrial Sites) and No.10 (Pollution from Highway Depots). It is hoped that these initiatives aimed at giving advice to developers and site operators will benefit industrial catchments such as the Stour (Action B15b).

A national NRA emergency hotline was introduced at the end of 1993. The 24 hour freephone number is 0800 80 70 60, and is available to report all environmental incidents, such as pollution, poaching, flooding or any signs of damage or danger to the natural water environment.

A summary of pollution incident reports by type in the Stour catchment is given below. The proportion of 'significant' incidents was less in 1993/4, although there were more unsubstantiated reports which result in a higher overall reported figure. This probably reflects an increase in the reporting of pollution due to heightened public awareness. The objective of ongoing and increased pollution prevention work is to work towards a reduction in the number of pollution incidents in the catchment (Action 15).

#### **Pollution Incident Reports by type - Stour Catchment**

	April 1992-March 1993				April 1993-March 1994			
	Class 1	Class 2	Class 3	Total	Class 1	Class 2	Class 3	Total
Chemical	0	3	6	9	0	4	19	23
Oil	1	19	48	68	1	10	32	43
Sewage	0	12	17	29	0	4	13	17
Food Processing Waste	0	2	0	2	0	1	0	1
Suspended Solids	0	3	15	18	0	2	6	8
Farm Waste	0	0	7	7	0	3	6	9
Colour	0	0	2	2	0	2	3	5
Foam	0	0	3	3	0	0	3	3
Other	0	11	73	84	0	1	102	103
No Pollution (unsubstantiated)	-	-	57	57	-	-	85	85
<b>TOTALS</b>	<b>1</b>	<b>50</b>	<b>228</b>	<b>279</b>	<b>1</b>	<b>27</b>	<b>269</b>	<b>297</b>

Class 1 - Major incident, Class 2 - Significant incident, Class 3 - Minor incident/unsubstantiated.

Enforcement and routine monitoring work are important in achieving the NRA's objective to progressively improve water quality throughout the catchment, and protect against risk of pollution (Action 15). These operations and regulatory responsibilities form the basis of our work.

During 1994 there were 3 successful prosecutions brought against polluters in the Stour catchment, with one case still pending. 2 formal cautions (with one pending) were also given. Formal cautions are given where it is deemed inappropriate to prosecute but it is clear that an offence has been committed. In 1993 the respective figures were 3 prosecutions and 2 formal cautions (Action B15c).

Routine monitoring work includes site inspections throughout the catchment. During 1994, 310 site inspections were carried out at sewage works (private and water company), 119 inspections of sewerage overflows, 409 inspections of industrial sites, 138 inspections of contaminated land and waste disposal sites, 24 inspections at farms, and 65 inspections categorised as 'other' (Action B15b).

### **3.3 Issue C: Contamination of Groundwater**

*The quality of groundwater within the catchment is generally good, although certain areas yield poor quality water due to the effects of urban and industrial development and previous intensive sewage sludge spreading.*

- **Completion of Severn Trent Water Ltd's sewage sludge incinerator at Roundhill STW in January 1995, and cessation of sewage sludge spreading.** Intensive sewage sludge spreading has led to increased nitrate and chloride concentrations in the groundwater. These are set to reduce now the practice has been phased out, although significant improvements in water quality are not anticipated for some years (Action C2b).
- **Adoption of two new Nitrate Sensitive Areas (NSAs) and identification of four proposed Nitrate Vulnerable Zones (NVZs) in the Stour catchment.** Kinver and Hagley NSAs were announced in Autumn 1993, and farmers asked to sign up to them from July 1994. The scheme is voluntary, and compensation is given for complying with agricultural practices designed to control nitrate levels. Details of the Government's proposals for NVZs (implementation of EC Nitrate Directive (91/676/EEC)) were published in May 1994. The four proposed NVZs in the catchment (Tom Hill, Hagley/Wildmoor, Kinver and Hinksford) have been identified by the NRA for MAFF, and put out for public consultation in July 1994. The NVZ scheme will be compulsory, and the measures have not yet been finalised but will be equivalent to good agricultural practice (Action C2c).

### 3.4 Issue D: Availability of Groundwater

*Groundwater is the major source for water abstraction for public supply, and for industrial and agricultural use. Generally, the use of groundwater in the catchment exceeds the long term sustainable yield available.*

- **Enforcement of abstraction licence conditions reduced illegal abstraction of water in the catchment during 1994.** For example, a successful prosecution was secured by the NRA against a farming partnership for spray irrigating from groundwater without a licence in the Mustow Green area.
- **Publication of two important NRA water resources strategy documents (also applies to 3.5 below).** The 'Regional Water Resources Strategy' was published concurrently with the Stour Final Plan at the end of 1993 and provides a policy framework for the management of water resources in the Severn-Trent Region (including the Stour catchment) until 2021. 'Water, Nature's Precious Resource' is a national initiative published in March 1994, and aims to develop an environmentally sustainable water resources development strategy for England and Wales.

### 3.5 Issue E: Low Flow Problems

*The overall rate of abstraction of groundwater is high and has led to some watercourses in the catchment suffering from low flows, and several pools have dried up, for example in the Blakedown Valley.*

- **Pumping from Pavilion Borehole in Blakedown Valley during the dry spells of 1994 maintained water levels in Pavilion Pool and Harborough Pool.** This ensured continuity of habitat for bird life and local wetland with associated amenity benefits. (Action E1b).

- **Drilling of a second flow-support borehole** has been delayed due to difficulties in securing the necessary clearance to enable water to be put into Ladies Pool. Plans to pump into Forge (Wheatmill) Pool are now proceeding as an interim measure.
- **Investigations are continuing in conjunction with the Highways Agency and English Nature into the reliance of Hurcott SSSI wetlands on local groundwater reserves.** Two investigations are being appraised to determine if any further field studies are needed (Action E1c).

### **3.6 Issue F: Low Conservation Value of the Water Environment**

*The River Stour and Smestow Brook are ecologically poor with heavily engineered banks in the upper and lower reaches, limited bankside vegetation and poor water quality. The Final Plan highlighted the need to improve these habitats, and also the need to improve damaged landscape areas related to the water environment.*

- **Preparatory work for local nature reserve by River Stour in Kidderminster** has been brought forward, with proposals to start work on the ground in 1995/6. The draft management plan has been produced ahead of schedule, because of the site's importance as a wetland Site of Special Scientific Interest (SSSI) (Action F3).
- **Implementation of Site Management Plans.** The Mousesweet Brook project has been brought forward for completion in March 1995, (Action F4b).
- **Completion of Wetland Prime Site Surveys December 1994.** (Action F4c)
- **Completion of archaeological record update September 1994** (Action F6).
- **Conservation improvements carried out in connection with Flood Defence tree maintenance work at Corngreaves and the Mousesweet Brook.** (Action F1c)

### **3.7 Issue G: Poor Fish Stocks**

*The poor water quality, urbanised/engineered river channels and low flows in some watercourses are reflected by the low diversity and numbers of fish throughout much of the catchment.*

- **There has been a marked improvement in fish stocks in the Staffs and Worcester Canal.** A survey undertaken in 1994 has shown improvements in fish numbers and diversity throughout the whole length of the canal, particularly the top third of the canal in the Wolverhampton area. Unfortunately, with the present sewerage and sewage disposal regime for Wolverhampton, this improvement may not be sustainable. Storm sewer overflow problems following summer storms mean this improvement may only be temporary (Actions G1/G2).

### 3.8 Issue H: Limited Recreational Facilities

*Recreation and leisure activities are impeded by poor water quality and limited access, particularly in urban areas.*

- **Tree maintenance and bank clearance works have recently been carried out along newly designated Main River sections of the River Stour at Corngreaves in the Cradley area.** The NRA can undertake maintenance and clearance works on Main River, but improvements to non Main River are dependent on landowners' permission. Generally any increase in scope for recreational and angling opportunities in the catchment is also dependent on water quality improvements and improvements in fish stocks (Action H1c).

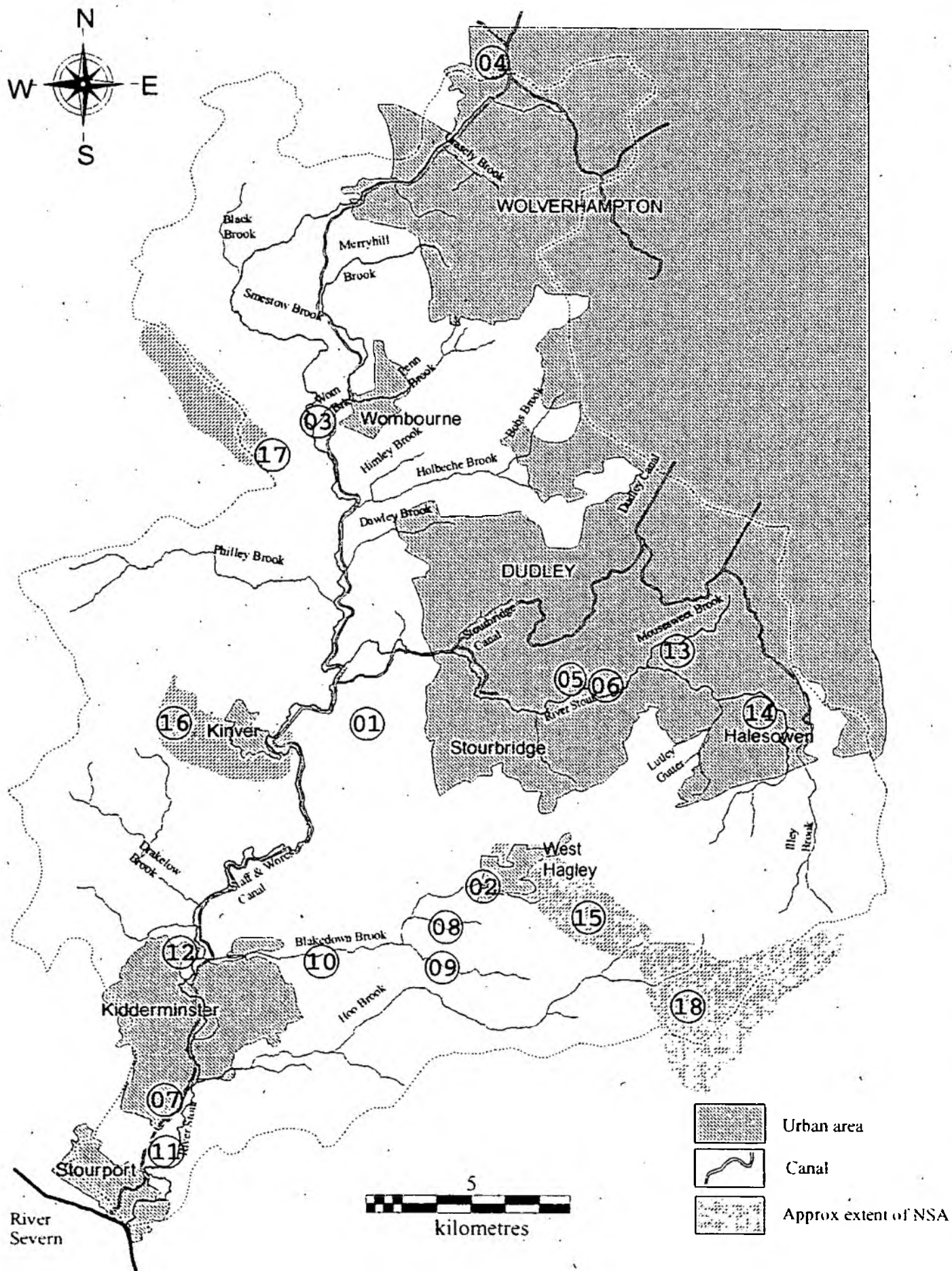
### 3.9 Issues I,J,K: Flooding Problems

*Particular flooding problems have been identified in Kidderminster, Wolverhampton/Aldersley and at 16 other specific locations in the catchment. Historic urbanisation of the catchment resulted in encroachment of buildings into, and loss of, natural flood plain areas. Rapid run-off produced by urban areas and pressures for development of flood plain areas are particular problems in the Stour catchment.*

- **Improvements have been made to enable access to the River Stour for maintenance purposes in the middle of Kidderminster.** This followed redevelopment during 1994 of a major town centre site, which also included landscaping to improve the water environment. Access improvements at the site will assist in clearance of blockages and alleviate flooding. Careful redevelopment of urban sites adjacent to watercourses can provide an opportunity to redress obstruction to watercourses and the historic encroachment into flood plain.
- **Desilting works have been carried out on an approximate 1 kilometre stretch of the River Stour in Kidderminster.** This work will result in improved channel capacity to convey flood flows.

# The River Stour Catchment

Key Sites referred to in Annual Review



## 4.0 MONITORING REPORT

The following Action Plan tables have been taken from the Final Plan document, and updated to show progress and any changes that have occurred since the Final Plan was published. Progress for each action is summarised in the column on the right hand side. Any changes from the Final Plan are highlighted in bold text.

### Notes on Abbreviations

AMP2	Asset Management Plan 1995-2000
BW	British Waterways
DOE	Department of the Environment
DOT	Department of Transport
EN	English Nature
GWU	Groundwater Unit
LA	Local Authority
LPA	Local Planning Authority
MAFF	Ministry of Agriculture, Fisheries and Food
MBC	Metropolitan Borough Council
NSA	Nitrate Sensitive Area
NVZ	Nitrate Vulnerable Zone
PPPG	Policy and Practice for the Protection of Groundwater (NRA 1992)
SSSI	Site of Special Scientific Interest
STW	Sewage Treatment Works
STW Ltd	Severn Trent Water Ltd
UWWTD	Urban Wastewater Treatment Directive
WRA	Waste Regulation Authority

### Key

P	Project costs yet to be identified
R	Recurring costs
U	Unknown or unavailable costs
*	Under AMP2, approximately £40 million has been allocated to 4 STWs in the Stour Valley (Freehold, Caledonia, Roundhill and Kidderminster), but detailed allocation not decided at this stage.
<	Less than
>	Greater than
_____	Final Plan timescale
-----	Revised timescale

Key to Numbered Sites on Map Opposite			
1. Roundhill STW (B3)	7. Kidderminster STW (B4)	13. Mousesweet Brook Project Site (F4)	
2. Hagley STW (B10, B11)	8. Pavilion/Harborough Pool (E1)	14. Congreaves (F1, H1)	
3. Wombourne STW (B8)	9. Ladies/Forge Pool (E1)	15. Area of Hagley NSA (C2)	
4. Barnhurst STW (B13)	10. Hurcott Pool SSSI (E1)	16. Area of Kinver NSA (C2)	
5. Freehold STW (B2)	11. Continuous Water Quality Monitor at Wilden (B15)	17. Area of Tom Hill NSA (C2)	
6. Caledonia STW (B2)	12. Site of R. Stour local nature reserve (F3)	18. Area of Wildmoor NSA (C2)	

No	Issue/Objective	Action	Responsibility	Total Cost (£k)	1994/95	1995/96	1996/97	1997/98	1998/99	Future	Progress
A1	Seek to minimise the adverse effects of urban development on the water environment.	a) Persuade Local Planning Authorities to include policies designed to protect the water environment and NRA interests in development plans.	NRA Local Planning Authorities (LPAs)	R U	_____	_____	_____	_____	_____	_____	Ongoing. Average of 90% of NRA proposed policies included in current versions of published Local Plans: Wolverhampton, Dudley, S Staffs, Wyre Forest, Bromsgrove. Guidance Notes for LPAs launched February 1994.
		b) Encourage environmental enhancement as part of development/redevelopment and as part of the NRA's duty to enhance the environment under the Water Resources Act 1991.	Local Planning Authorities Developers NRA	U U R	_____	_____	_____	_____	_____	_____	Ongoing.
B1	Improve 4km of River Stour from Cradley to Freehold (upgrade from NWC Class 3 to Class 2).	a) Investigate and identify causes of pollution.	NRA	6	_____	_____	_____	_____	_____	_____	No single point source identified. Investigation continuing, particularly on culverted Salt Brook tributary. Likely to be general urban run-off.
		b) Secure improvements where appropriate.	Dischargers	U	_____	_____	_____	_____	_____	_____	Dependent on above.
B2	Improve 7.5km of River Stour from Freehold STW to confluence with Smestow Brook (upgrade from Class 3 to Class 2).	a) Improve Freehold Sewage Treatment Works (STW) and Caledonia STW.	Severn Trent Water Ltd (STW Ltd)	*	_____	_____	_____	_____	_____	_____	Expenditure for major improvements to 4 STWs in Stour Valley recently approved by DOE (Freehold, Caledonia, Roundhill & Kidderminster). Discussion on details now taking place between NRA/STW Ltd.
		b) Investigate performance of sewage overflows and negotiate improvements to sewerage system.	NRA STW Ltd	2 U	_____	_____	_____	_____	_____	_____	Unsatisfactory overflows identified. Priority action list being discussed with STW Ltd and likely to be completed by March 1995.
B3	Improve 21.8km of River Stour from Smestow Brook confluence to Kidderminster (upgrade from Class 3 to Class 2).	Improve Roundhill STW.	STW Ltd	*	_____	_____	_____	_____	_____	_____	See B2a above.

No	Issue/Objective	Action	Responsibility	Total Cost (£k)	1994/95	1995/96	1996/97	1997/98	1998/99	Future	Progress
B4	Improve 5km of River Stour from Kidderminster to River Severn (upgrade from Class 3 to Class 2).	a) Secure upstream improvements in STWs.	STW Ltd	*	-----	-----	-----	-----	-----	-----	See B2a.
		b) Ensure compliance with agreed action plan for progressively reducing discharge of pesticides from carpet industry.	NRA STW Ltd Carpet Industry	10 U U	-----	-----					New phased consent issued. Regular tripartite meetings held to monitor progress.
B5	Improve 3km of Mousesweet Brook to ensure compliance with EC Dangerous Substances Directive (for Chromium).	a) Investigate and identify source of contamination.	NRA	10	-----	-----					Considerable excavation work already taken place - Further work planned, possibly involving borehole drilling, but sources not identified yet.
		b) negotiate improvement scheme with landowner/discharger subject to adequate legal provision.	Landowner Discharger	U							Dependent on above.
B6	Improve 10km of Smestow Brook from Trescott to Hinksford (upgrade from Class 3 to Class 2).	a) Improve Barnhurst STW.	STW Ltd	U	-----	-----	-----	-----	-----	-----	Improvements planned for Barnhurst. Details being discussed.
		b) Improve Trescott STW.	STW Ltd	U							No plans within next 5 years for Trescott due to lack of financial approval by DOE.
B7	Improve 2km of Wom/Penn Brook from Gospel End to The Wodehouse (Upgrade from Class 3 to Class 2).	a) Improve Gospel End STW and/or	STW Ltd	U						-----	As for Trescott above, no plans within next 5 years.
		b) Redirect effluent to Smestow Brook.	STW Ltd	U						-----	As (a) above.
B8	Improve 0.5km of Wom/Penn Brook from Wombourne to confluence with River Stour (upgrade from Class 3 to 2).	a) Improve Wombourne STW and/or	STW Ltd	U	-----	-----	-----	-----	-----	-----	Some money allocated under AMP2 for Wombourne STW for purpose of ensuring compliance with UWWTD, but may not be sufficient to upgrade Wom Brook.
		b) Redirect discharge to Smestow Brook.	STW Ltd NRA								Now less likely to be considered.

No	Issue/Objective	Action	Responsibility	Total Cost (£k)	1994/95	1995/96	1996/97	1997/98	1998/99	Future	Progress
B9	Improve 0.5km of Bobs Brook from Lower Gornal to Holbeache Brook confluence (upgrade from Class 4 to 3).	Improve Lower Gornal STW.	STW Ltd	U						—	As for Trescott above (B6b), no plans within next 5 years.
B10	Improve 3.2km of Gallows Brook from Hagley STW to confluence with Blakedown Brook (upgrade from Class 3 to 2).	Improve Hagley STW.	STW Ltd	U	—	—	—	—	—	—	As for Wombourne above (B8a), some money allocated but may not be sufficient to upgrade Blakedown Brook.
B11	Improve 5km of Blakedown Brook from Gallows Brook confluence to River Stour confluence (upgrade from Class 2 to 1B).	a) Secure improvement to Hagley STW (see above).	STW Ltd	U	—	—	—	—	—	—	See above (B10).
		b) Improve Blakedown STW and/or	STW Ltd	U						—	No money allocated in next 5 years.
		c) Protect existing stream baseflow.	NRA Abstractors	U U	—	—	—	—	—	—	Representations made to Bromsgrove DC to retain Hagley STW and resist major housing development -to sustain baseflow and maintain quality.
B12	Establish reason for apparent deterioration in quality of Hoo Brook.	a) Investigate and identify cause.	NRA	2	—	—					Detailed investigation carried out. No single point source identified. Investigation continuing.
		b) Secure improvements where appropriate.	Dischargers	U							Dependent on above.
B13	Improve 17km of Staffs & Worcs Canal between Compton & Stourbridge Canal confluence (upgrade from Class 3 to 2).	a) Improve Barnhurst STW and/or	STW Ltd	U	—	—	—	—	—	—	Money allocated by DOE to ensure compliance with EC Fisheries Directive. Improvements being carried out.
		b) Consider redirecting effluents to Smestow Brook/River Penk.	NRA STW Ltd	1 U	—						Desk study suggests this would not be the best environmental option for surrounding waters.

No	Issue/Objective	Action	Responsibility	Total Cost (£k)	1994/95	1995/96	1996/97	1997/98	1998/99	Future	Progress
B13 (Cont)		c) Undertake removal of contaminated sediments from canal bed. d) Carry out additional monitoring to assess implications of delay in (c)	British Waterways (BW) NRA	U 1		-----				-----	None. Top priority for BW but at present no money available.
B14	Investigate use of settling lakes to treat urban run-off.	Commission desk study	NRA	3	-----	-----					Potential sites identified. Further investigation in hand.
B15	Progressively improve water quality throughout catchment and protect against risk of pollution incidents.	a) Trace and stop illegal discharges.	NRA	R	-----	-----	-----	-----	-----	-----	Ongoing. See Section 3.2
		b) Continue to inspect high risk sites eg: pesticide stores and give advice to developers.	NRA Developers	R	-----	-----	-----	-----	-----	-----	Ongoing. See Section 3.2
		c) Monitoring and enforcement.	NRA	R	-----	-----	-----	-----	-----	-----	Ongoing. See Section 3.2
C1	Ensure that development of waste disposal sites or redevelopment of contaminated land sites does not compromise groundwater quality.	a) provide guidance to Developers/Landowners as part of NRA statutory duties.	NRA Developers Landowners	R U U	-----	-----	-----	-----	-----	-----	Ongoing. All proposals assessed to ensure no risk to groundwater.
		b) Provide guidance to Local Waste Disposal and Local Planning Authorities as a statutory consultee.	NRA Local Waste Regulation Authorities (WRAs) LPAs	R U U	-----	-----	-----	-----	-----	-----	Ongoing. Regular liaison with Waste Regulation Authorities.
C2	Ensure that any activity does not compromise groundwater quality.	a) Seek adoption of the NRA Policy and Practice for the Protection of Groundwater (PPPG).	NRA WRAs LPAs Developers Landowners	R U  U U	-----	-----	-----	-----	-----	-----	Ongoing. All proposals dealt with in accordance with Policy Statements. All WRAs/LPAs have had copies of PPPG document since late 1993. Liaison work with contractors continuing.

No	Issue/Objective	Action	Responsibility	Total Cost (£k)	1994/95	1995/96	1996/97	1997/98	1998/99	Future	Progress
C2 (Cont)		b) Continue phasing out of sewage sludge spreading (sewage sludge incinerator being developed).	STW Ltd NRA	14,000	—						Sewage sludge spreading now ceased. Incinerator in operation from January 1995.
		c) Encourage farmers to adopt alternative farming practices to reduce nitrate pollution.	NRA Farmers Ministry of Agriculture Fisheries & Food	R U U	—	—	—	—	—	—	NVZs defined by NRA for MAFF. New NSAs adopted officially and 'policed' by MAFF.
D1	Encourage more efficient use of existing sources.	a) Develop winter storage for agricultural use.	NRA Landowners	R U	—	—	—	—	—	—	Ongoing. No winter storage put in in 1994 (no licences issued) although charging policy encourages this.
		b) Improve leakage control for public water supply.	NRA STW Ltd South Staffordshire Waterworks Co (SSWC)	R U U	—	—	—	—	—	—	Ongoing, Regional Water Resources Strategy (Nov. 1993) calls for tighter leakage control. Improved leakage targets are encouraged for Water Company demand forecasts.
		c) Investigate further joint use of groundwater and surface water sources.	NRA STW Ltd SSWC	R	—	—	—	—	—	—	Ongoing, still under investigation.
D2	Reduce licensed abstractions, initially to arrest further decline in the water table and later to promote a return of baseflow to currently affected streams.	a) Promote use of alternative sources.	NRA STW Ltd SSWC	R U U	—	—	—	—	—	—	Water Companies encouraged to use the treated water mains from Trimley and Hampton Loade, thereby using River Severn water.
		b) Refuse further licensing of resource in over licensed groundwater units.	NRA	R	—	—	—	—	—	—	This remains NRA policy. Kidderminster, Wombourne and Stourbridge GWUs are Category A - no further Public Water Supply abstractions allowed. Refer to Review of Groundwater Abstraction for Licensing Purposes Oct 1994.
		c) Assess revocation of existing licence rights.	NRA	R	—						Study completed Jan 1995. Revocation of licences not used for > 7 years would not have tangible effect.

No	Issue/Objective	Action	Responsibility	Total Cost (£k)	1994/95	1995/96	1996/97	1997/98	1998/99	Future	Progress
D2 (Cont)		d) Develop Groundwater Model to assess resources.	NRA	100	_____	_____	_____	_____	_____	_____	Model specification completed. Model programme 1995-6 for the above 3 GWUs.
		e) Seek legislative change to gain greater control over licences.	NRA Department of the Environment (DOE)	R U	_____	_____	_____	_____	_____	_____	Trickle irrigation control sought but unlikely under forthcoming legislation for the Environment Agency.
E1	Ameliorate low flow problems.	a) As Issue D2.	NRA Abstractors	R U	_____	_____	_____	_____	_____	_____	As D2.
		b) Undertake localised short-term compensation measures to augment flows by means of 2 boreholes in Blakedown Valley.	NRA	50	_____	_____	_____	_____	_____	_____	Pumping during summer 1994 maintained Pavilion Pool and Harborough Pool. Second borehole drilling 1995/6.
		c) Undertake an investigation to establish water level control at Hurcott Pools (SSSI).	NRA Highways Agency/Dept. of Transport (DOT) English Nature	10 U U	_____	_____	_____	_____	_____	_____	Preliminary data including biological monitoring obtained for Hurcott Pool SSSI. Piezometers being dipped by NRA. Future management options and need for any further study being appraised. Site now owned by Highways Agency/DOT.
		d) Undertake remedial works to restore more natural flow regime in Blakedown Valley Pools.	NRA	<20	_____	_____	_____	_____	_____	_____	Borehole preparatory work almost complete to drill augmentation borehole for flow into Forge/Wheatmill Pool.
F1	Increase biological diversity of water environment.	a) Improve underlying water quality (see also Issues B & C).	NRA STW Ltd LA	R U U	_____	_____	_____	_____	_____	_____	As Issues B & C.
		b) Improve water resources/low flows (see also Issues D & E).	NRA STW Ltd	R U	_____	_____	_____	_____	_____	_____	As Issues D & E.
		c) Improve physical habitat in association with flood defence works.	NRA	8	_____	_____	_____	_____	_____	_____	Tree maintenance for conservation interests at Corngreaves (Cradley) & Mousesweet Brook.

No	Issue/Objective	Action	Responsibility	Total Cost (£k)	1994/95	1995/96	1996/97	1997/98	1998/99	Future	Progress
F1 (Cont)		d) Determine policy and methodology for control of exotic invasive weeds.	NRA	<5	_____						Completion due March 1995
F2	Improve damaged landscape areas related to water environment.	a) Identify damaged sites.	NRA	5	_____	_____	_____	_____	_____	_____	Report due March 1995.
		b) Implement improvements.	NRA	10	_____	_____	_____	_____	_____	_____	Potential sites will be identified in above Report.
F3	Improve educational conservation facilities.	Develop local nature reserve by River Stour in Kidderminster.	NRA Wildlife Trusts English Nature (EN)	10 U 2		-----					Draft Management Plan produced. Budget bid brought forward to work on ground next year 1995/96.
F4	Improve site management on wetland SSSIs and Prime Sites.	a) Develop site management plans.	EN LA Wildlife Trusts	U U U	_____	_____	_____				Draft already produced. Final Plans March 1995.
		b) Implement site management plans.	NRA EN LA Wildlife Trusts	12 U U U	_____	_____	_____	_____	_____	_____	Ongoing, on collaborative basis. Mousesweet Brook project brought forward for completion March 1995.
		c) Safeguard existing wetland wildlife sites.	NRA	3	_____	_____	_____	_____	_____	_____	Wetland Prime Site surveys completed December 1994.
F5	Improve knowledge on typical landscape styles to enable protection and enhancement to be done.	a) Upgrade NRA information.	NRA	<5	_____	_____					Interim Report due March 1995.
		b) Develop landscape strategy and guidelines for all NRA activities.	NRA	<5	_____	_____					Interim Report due March 1995.
F6	Improve records on relevant archaeological sites in catchment.	Update NRA records.	NRA	<5	_____					_____	Completed September 1994 ahead of Scheduled Final Plan timescale of 1995/6.

No	Issue/Objective	Action	Responsibility	Total Cost (£k)	1994/95	1995/96	1996/97	1997/98	1998/99	Future	Progress
F7	Improve protection, interpretation of and access to sites of industrial heritage significance.	a) Incorporate protective measures in all NRA operations.	NRA	5	—	—	—	—	—	—	Ongoing via environmental appraisal procedures.
		b) Encourage external bodies and developers to adopt protective measures.	NRA	5	—	—	—	—	—	—	Ongoing via environmental appraisal procedures.
		c) Undertake projects to protect and interpret important sites.	NRA English Heritage LA	5 U U	—	—	—	—	—	—	No change. Ongoing from 1995/6 as opportunities arise.
G1	Increase fish stocks throughout catchment.	a) Improve underlying water quality (see also Issues B & C).	NRA STW Ltd LA	R U U	—	—	—	—	—	—	As Issues B & C.
		b) Improve water resources/low flows (see also Issues D & E).	NRA STW Ltd	R U	—	—	—	—	—	—	As Issues D & E.
		c) Improve physical habitat in association with flood defence works.	NRA	8	—	—	—	—	—	—	No flood defence maintenance works in 94/95 suitable for habitat improvement.
		d) restock suitable species in improved reaches.	NRA	9	—	—	—	—	—	—	500 chub/dace stocked in lower reaches December 1994.
G2	Provide adequate information on canal fish stocks (to monitor compliance with EC Directives and Statutory Water Quality objectives).	Carry out surveys on Staffs and Worcs Canal.	NRA	8	—	—	—	—	—	—	Fieldwork and Report completed October 1994.
H1	Increase scope for recreational uses within catchment.	a) Improve underlying water quality (see also Issues B & C).	NRA STW Ltd LA	R U U	—	—	—	—	—	—	As Issues B & C.
		b) Improve water resources/low flows (see also Issues D & E).	NRA STW Ltd	R U	—	—	—	—	—	—	As Issues D & E.
		c) Improve physical habitat in association with flood defence works.	NRA	4	—	—	—	—	—	—	Tree maintenance for recreation interests at Corngreaves, Cradley.

No	Issue/Objective	Action	Responsibility	Total Cost (£k)	1994/95	1995/96	1996/97	1997/98	1998/99	Future	Progress
HI (Cont)	Increase scope for recreational uses within catchment.	d) Improve access for able and disabled anglers.	NRA Sports Council Landowners LAs	10 U U U							Dependent on water quality improvements, improvements in fish stocks and landowners' permission.
		e) Improve access for other recreational use by collaborative projects eg Stour Valley Walkway.	NRA Sports Council Landowners LAs	10 U U U							Dependent on landowners' permission/Section 106 Obligations.
		f) Promote angling opportunities.	NRA Sports Council Landowners	5 U U							Dependent on water quality improvements and improvements in fish stocks.
		g) Promote other recreational opportunities.	NRA Sports Council Landowner	4 U U							No appropriate opportunities in 1994.
		h) Remove waterborne debris which has flooding implications.	NRA	R							Ongoing.
		i) Encourage outside bodies/groups to undertake bank clean up campaigns where appropriate.	NRA LAs Volunteer Groups	5 U U							Ongoing. Tree maintenance and bank clearance undertaken along new sections of Main River (R.Stour), upstream of Corngreaves, Cradley.
		j) Determine legal status of navigation of Lower Stour.	NRA	<5							Future. Unlikely to provide cost effective benefits.
I	Protect people, property and land from flooding to standards which are practical, economic and appropriate.	a) Implement improvement scheme, pending redevelopment of riparian land.	NRA Landowner Developer	) )1,700 )							Dependent on redevelopment, in turn dependent on economy. No movement in 1994.
	Potential flooding in Kidderminster.	b) Provide flood forecasting and warning.	NRA LA Police Flood Wardens	R U U U							County emergency planning negotiating greater District Council involvement, with NRA support. Progress limited.

No	Issue/Objective	Action	Responsibility	Total Cost (£k)	1994/95	1995/96	1996/97	1997/98	1998/99	Future	Progress
J	Periodic flooding of Wolverhampton Racecourse and properties in Aldersley area.	Increase channel capacity of the Smestow Brook by either construction of a bypass culvert or instream channel improvement.	Wolverhampton MBC STW Ltd NRA	) 2,800 )	—	—					Sewerage system flows modelled. Revised scheme using balancing designed. First phase of construction due to commence January 1995. Revised estimate of cost.
K	Periodic flooding at 16 specific locations.	a) Restore flow to natural regime through source control and surface water balancing where appropriate.	NRA LAs Landowners Developer	R U U U	—	—	—	—	—	—	Ongoing as development opportunities arise.
		b) Improve watercourses to increase capacity.	NRA LAs Landowners Developer	R U U U	—	—	—	—	—	—	Review of Main River locations commenced.
		c) Improve access through liaison with landowners and LAs.	NRA LAs Landowners Developer	R U U U	—	—	—	—	—	—	Ongoing as development opportunities arise. Improved access constructed to River Stour in Kidderminster.
		d) Encourage environmental awareness to reduce waterborne debris.	NRA LAs Landowners Developer	R U U U	—	—	—	—	—	—	Liaison commenced.
		e) Undertake surveys of flooding problems as required under the Water Resources Act 1991.	NRA	R			—			—	Frequency of review of previous Section 24(5) Survey (now referred to as Section 105) is currently being determined. Yearly review too frequent.
		f) Prevent encroachment of development into flood plain by seeking inclusion of appropriate policies in development plans.	NRA	R	—	—	—	—	—	—	Ongoing. Flood plain defined on Stour and Smestow. Input into Public Local Inquiries for S. Staffs, Wyre Forest and Bromsgrove Local Plans. Flood plain policies included in Dudley Unitary Development Plan.

## 5.0 FUTURE REVIEWS

The Final Plan will be monitored annually and a report, the CMP Annual Review, will be issued outlining progress. The need to update the CMP will be assessed at the next CMP Annual Review. The period between major revisions to the CMP will normally be five years.

### APPENDIX 1

#### Current Status of Development Plans in the Stour Catchment

Local Authority	Area (Km <sup>2</sup> )	Development Plan
Wolverhampton Metropolitan Borough	29.8	Wolverhampton Unitary Development Plan - adopted September 1993.
Dudley Metropolitan Borough	89.4	Dudley Unitary Development Plan - adopted 30 November 1993.
Sandwell Metropolitan Borough	10.3	Sandwell Unitary Development Plan - adopted 10 January 1995.
West Midland Metropolitan Boroughs	129.5 (35%)	Strategic Guidance for West Midlands (PPG 10: 1988) to be superseded by Regional Planning Guidance for the West Midlands (draft Sept 1994). This will include counties of Hereford and Worcester, Shropshire, Staffordshire and Warwickshire in addition to the W. Midlands Metropolitan Districts. Final version expected early 1995.
South Staffordshire District Council	114.7	Draft district wide Local Plan - Public Local Inquiry May - August 1994. Inspector's Report expected March 1995.
Staffordshire County Council	114.7 (31%)	Staffordshire County Structure Plan (1991) - review commenced and Consultative draft available Spring 1995.
Wyre Forest District Council	81.8	Draft district wide Local Plan - Public Local Inquiry April - July 1994. Inspector's Report expected April 1995.
Bromsgrove District Council	40.3	Draft district wide Local Plan - Public Local Inquiry due April 1995.
Hereford & Worcester County Council	122.1 (33%)	Second Alteration to County Structure Plan approved from 11 March 1993. Review commenced, draft expected Summer 1995.
Bridgnorth District Council	3.7	Bridgnorth District Local Plan adopted 2 September 1994.
Shropshire County Council	3.7 (<1%)	Shropshire County Structure Plan operative from 1 January 1993.

## **APPENDIX 2 - Note on implementation of New River Water Quality Schemes**

Two new schemes for the reporting and management of river water quality were introduced in 1994. The new schemes will replace the National Water Council (NWC) Scheme, which was first introduced in the late 1970s. In May 1994, the River Ecosystem (RE) Use of the Statutory Water Quality Objectives (WQOs) was introduced by *The Surface Waters (River Ecosystem) (Classification) Regulations 1994*. At the same time the NRA introduced the General Quality Assessment (GQA) Scheme.

WQOs will be used for long term planning and target setting for the use of the river. The GQA classification will be used to make periodic assessment of overall water quality in order to monitor geographical trends and trends over time.

Until WQOs are formally established by legal notice served by the Secretary of State (and therefore exist on a statutory basis), they will be applied on a non-statutory basis through translation of River Quality Objectives (RQOs) from NWC classes to appropriate RE classes with target dates. These new non-statutory RQOs will form the basis from which to develop WQOs.

The introduction of WQOs will require full public consultation, and the timetable will be set by the Government. CMPs will provide the framework within which the NRA can implement the new system.

The Stour CMP utilised the NWC scheme for the setting of RQOs during the consultation process and compilation of the Final Plan during 1992 and 1993.

In Severn-Trent Region, RQOs (NWC based) are now in the process of translation into River Ecosystem Classes on a catchment by catchment basis following the introduction of the Regulations in May 1994.

The detailed translation for the Stour catchment is expected to be completed in March 1995. The Action Plan tables in this Review therefore still refer to NWC Classes, as in the Final Plan. The 1995 Annual Review will report on the translation exercise and will incorporate the new RE Classes and target dates in the Action Plan tables. The next Review will also report on any progress on the introduction and implementation of the WQO scheme.