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THE WANDLE, BEVERLEY BROOK, HOGSMILL
CATCHMENT MANAGEMENT PLAN

CONSULTATION REPORT SUMMARY



ENVIRONMENT AGENCY

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NRA

*National Rivers Authority
Thames Region
November 1994*

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ENVIRONMENT AGENCY



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INTRODUCTION

The NRA is the principal agency responsible for safeguarding and improving the water environment in England and Wales. We have statutory responsibilities for:

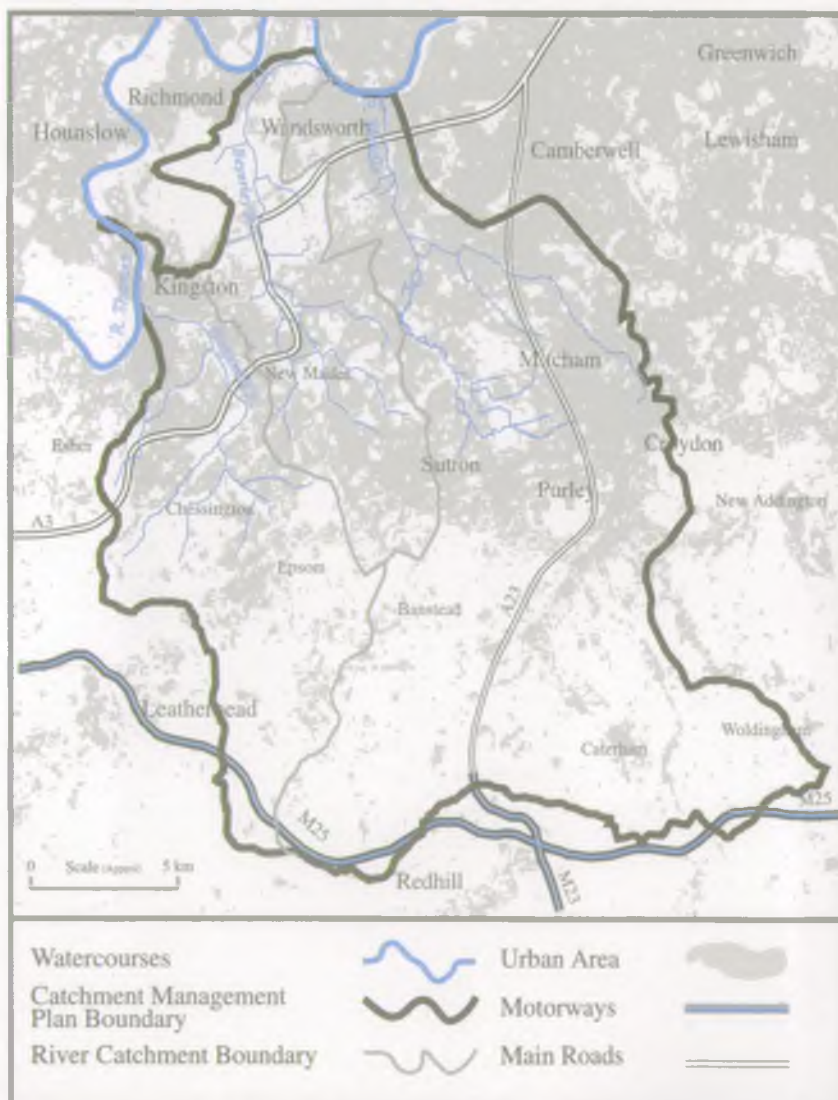
- water resources
- water quality and pollution control
- flood defence
- fisheries
- recreation and navigation
- conservation

Managing the water environment is a complex task. Understanding how rivers, lakes and groundwaters behave is fundamental to our job. However, we must also consider the way in which the uses of water and activities potentially harmful to it, interact and are managed. Abstracting water, disposing of effluent, urban development and water-based recreation are just some of the uses and activities which we need to consider and evaluate.



To help us work together with other interested parties in planning for the future of the water environment, we have established a process known as **Catchment Management Planning**. This document is a summary of the Consultation Report for the Wandle/Beverley/Hogsmill Catchment Management Plan. Once formal consultation is completed we will work towards producing an action plan for the catchment by the end of April 1995.

CATCHMENT MAP



CATCHMENT OVERVIEW

Situated between the River Thames and the North Downs the catchment is predominantly urban in nature with a resident population of 985 000 people.

The southern part of the catchment area overlies the Upper Chalk and the northern part is dominated by London Clay. The headwaters of the three rivers commence on or near the dip slope spring line of the North Downs chalk aquifer. Substantial springs occur at Ewell Ponds in the Hogsmill River catchment and at Carshalton Ponds, Beddington Park and Waddon Ponds in the River Wandle catchment. The Beverley Brook is predominantly a clay stream.



Whilst the decline of heavy industry has brought environmental benefits, large scale urban development continues to exert pressure on the local water environment via the combination of treated sewage effluent and urban stormwater discharges, engineered concrete river channels, increased stream velocities and loss of riverine habitat. The conservation of the remaining ecologically important water dependent habitats, riverine landscapes, sites of archeological interest and the enhancement of degraded river reaches will help to realise the recreational, amenity and educational potential of the local water environment.

KEY CATCHMENT FACTS

GENERAL

Population	985 000 (approximate)
Catchment area	339 sq km
Urban/suburban area	132 sq km (39%)
Length of river (source to River Thames)	19.0 kms (Wandle) 14.3 kms (Beverley Brook) 9.9 kms (Hogsmill)

WATER RESOURCES

Average annual rainfall	694 mm
Average flow (River Wandle)	143 MI/d
(Beverley Brook)	47 MI/d
(Hogsmill River)	84 MI/d
Total licensed groundwater abstraction	240 MI/d (estimate)

WATER QUALITY (GQA 1991 - 1993)

River length	Class A	0 km
	Class B	1.8 km (3%)
	Class C	14.1 km (32%)
	Class D	14.5 km (33%)
	Class E	11.7 km (26%)
	Class F	2.4 km (6%)
Length of EC designated cyprinid fishery (Wandle)		6.6 km

FLOOD DEFENCE

Length of statutory main river (Wandle)	26.7 km
(Beverley Brook)	23.1 km
(Hogsmill)	9.5 km
Area at risk from flooding once every 50 years	5.0 sq km (observed & predicted)

DESCRIPTION OF RESOURCES, USES AND ACTIVITIES

PHYSICAL ENVIRONMENT.

The catchment plan boundary is defined by the watershed within which all surface waters drain into the River Wandle, Beverley Brook and Hogsmill River which then discharge into the River Thames. All the rivers drain northwards from the dip slopes of the North Downs which rise to a level of 200m AOD (Above Ordnance Datum). There are a number of notable plateau areas in the north of the catchment rising to just over 50m AOD, specifically Richmond Park, Kingston Hill and Wimbledon Common. These are covered with older 'High Level Terrace' gravels which are significant topographic features.



The River Wandle also deposited an extensive fan of alluvial gravels on the flatter ground in the Beddington/Mitcham area.

The pattern of soils partly reflects the north to south geological sequence of the area and strongly influences both river flows and the quality of both ground and surface waters. The presence of slowly permeable clay soils in the north of the catchment combined with the extent of urban hard surfaces, explains the frequency of extreme flows in the lower reaches of the rivers. In the southern part of the catchment, most of the soils are permeable and allow rainfall to recharge the underlying chalk aquifer. A number of minor spring sources once existed along the dip slope spring line but the substantial exploitation of groundwater for public potable supply has resulted in the disappearance of many of these minor springs. The spring-fed Carshalton Ponds are artificially augmented when necessary by Sutton Water Co. Ewell Ponds are the subject of a future augmentation scheme should the need arise.

Groundwater and rainfall levels are monitored throughout the catchment and river flows are measured at a number of points along the main rivers. The average annual rainfall across the three catchments is 694mm with a considerable amount of variation across the area. The average rainfall in the lower northern half is 630mm compared with 760mm in the higher southern half.

URBAN DEVELOPMENT AND LAND USE

The catchments are predominantly urban/suburban in nature and continuing pressure on existing open space is a threat to both surface and groundwaters. The NRA TR works closely with Local Authorities to ensure that new development incorporates features to protect and enhance the local water environment. Most of the agricultural activity is in the south of the catchments with more than 50% of agricultural land under pasture. Significant decreases in cereal cropping and in the number of dairy cows, pigs and poultry over the last 10 years are part of a wider trend throughout the south of England. There is very little heavy industry left but some mineral extraction occurs and more is planned for the Beddington/Mitcham area. Several transport improvements are also planned including the current widening of the M25 and the proposed Croydon Tramway.

EFFLUENT DISPOSAL.

There are currently 16 NRA TR consented discharges with each of the three rivers receiving the treated effluent from a Thames Water Utilities sewage treatment works. These effluent discharges form the major flow in each river, particularly during summer months. Significant investment is planned for all three works to improve downstream water quality. A trade effluent discharge is also made by Sutton District Water Company into a tributary of the Pyl Brook. All these discharges fully comply with their current discharge consent limits. Despite the industrial heritage of these catchments, the combination of factory closures and diversions of process effluents to foul sewer, is such that the few remaining industrial discharges consist of cooling water and gas holder sealing water. A number of privately owned sewage treatment works also discharge small volumes of treated effluent to surface waters.



WATER ABSTRACTION.

Water abstraction for public water supply within the catchments is undertaken by three water companies with Sutton District Water accounting for over 50% of the licensed volume for groundwater abstraction. The extended dry period from 1989 to 1992 has raised concerns over the impact of abstraction on river flows and spring sources. Opportunities for future water resources development will be limited.

FLOOD DEFENCE.

The 59 kms of designated main river is maintained by NRA TR for flood defence purposes. Advances in computer modelling offer the opportunity to review past flood defence provision within the catchment. Increased flood storage on the upper river reaches reduces the need for large scale flood defence capital schemes and will also increase the scope for river channel enhancements downstream. Illegal dumping of rubbish into these urban water-courses leads to blocking of culverts and the need to install rubbish screens which must be frequently cleared during high flows to prevent flooding.



FISHERIES AND CONSERVATION.

The upper reaches of the River Wandle and Hogsmill River are fed by chalk groundwater and in their natural state supported good trout fisheries. The combined influence of urbanisation, effluent disposal and the impact of river engineering works has resulted in the loss of such sustainable fisheries. Transient populations of brown trout in the upper reaches of the River Wandle have however been artificially maintained by NRA TR stocking programmes. Fish populations in the 6.6 km EC designated cyprinid reaches are reasonable but the majority of the reaches in all three rivers support poor fish populations. Angling is minimal and informal. Important stillwater fisheries are found in Wimbledon Park and on a number of lakes within public open space. NRA TR is working with riparian interests to seek improvements in water quality and habitats to increase fish stocks.



All three rivers provide a valuable green corridor through predominantly urban areas linking various sites of conservation value including SSSIs and Local Nature Reserves. A number of local authorities have designated many river reaches as Sites of Metropolitan Importance based on the abundance and diversity of river fauna and flora. The intertidal mudflats on the River Wandle are also important habitats for wildlife.



LANDSCAPE AND HERITAGE.

Within the south of the catchment, the North Downs chalk scarp forms part of the Surrey Hills/Kent Downs Area of Outstanding Natural Beauty (AONB) and significant areas are designated by Local Authorities as Areas of Great Landscape Value (AGLV). A number have also recognised the importance of maintaining and creating a network of landscaped river corridors within the catchment to visually

enhance linear spaces leading through the built environment. The River Wandle valley has particularly benefited from such policies which enhance the amenity value of the Wandle Trail. NRA TR commissioned, as a pilot study, a strategic and detailed landscape assessment of the Hogsmill River Catchment in 1993 as part of the proposed rehabilitation project. All three catchments are notable for their sites of archeological importance and potential. Given the potential impact of various NRA activities on such interests an R&D project is currently working towards developing a consistent approach to archaeology throughout the NRA.

RECREATION, AMENITY AND EDUCATION.

NRA TR supports the improvement of appropriate access and encourages the safe use of open waters for recreation, amenity and education purposes.

None of the three rivers have public rights of navigation but many opportunities are planned for improving safe access to the water. Proposals are in place to enhance and extend riverside walks along two of the watercourses ie. The Wandle Trail and the Hogsmill Walk. Access to the Beverley Brook is well served as it runs through



Richmond Park although within the London Walking Forum there is an aspiration to create a Beverley Brook riverside walk and to connect all three walks into the inner and outer London orbital walking routes. The retention/creation of a green corridor adjacent to river channels is not only important from a landscape and conservation viewpoint but will also provide the opportunity to further develop continuous long distance walkways/cycleways connecting the urban north of the catchment with the countryside in the south.



CURRENT SITUATION

WATER QUALITY.

The current General Quality Assessment (GQA) chemical grading of the River Wandle, Beverley Brook and Hogsmill River varies from grade B (good quality) to grade F (poor quality). The highest quality is found in the headwaters of the River Wandle and the poorest quality downstream of the sewage treatment works. Five river "uses" have also been proposed for setting water quality objectives under the Water Resources Act (1991). To date regulations have only been produced for the "River Ecosystem (RE)" use based on fishery requirements. Water quality either complied with or exceeded the RE class in eight out of the nine reaches in the catchment over the last three years. The EC Freshwater Fisheries Directive also stipulates chemical water quality targets for the upper reaches of the River Wandle. Two out of



the three reaches achieved or exceeded the standards required to support a cyprinid fishery during the 4 year period 1990 - 1993. The Croydon Branch failed in 1990 but has passed each year since. Under the EC Dangerous Substances Directive the concentration of the pesticide Lindane exceeds the required chemical standards downstream of the sewage treatment works; a common occurrence in urban watercourses.

The NRA TR currently monitors the quality of groundwater from a number of sources within the catchment. The quality of chalk groundwater, with the exception of part of the Croydon area, is consistently good. The quality of groundwater within the superficial gravels is extremely variable due to contamination from past industrial activity.

Although there is currently no biological grading system in place, the three rivers are monitored on an annual basis. A large proportion of watercourse length achieves only "poor" or "very poor" biological quality due principally to poor chemical water quality caused by sewage effluent, urban storm water

run-off and frequent pollution incidents. 33 significant incidents were investigated between 1990 and 1993. 12 of these resulted in prosecutions. Bacteriological levels in all three rivers are particularly high below the sewage treatment works but no standards are yet available that can be used to assess health risks associated with direct river water contact.

WATER QUANTITY.

Local groundwater resources are largely fully committed at the current time. In a number of instances, groundwater abstractions for potable supply are linked to requirements to protect spring flows into local ponds. However, it is important to distinguish between the impacts of abstraction and impacts of drought.

The Hogsmill River rises from chalk springs at Ewell which contribute an average of about 9MI/d. The Carshalton Branch of the River Wandle rises from springs at Carshalton whilst the Croydon Branch is fed by springs at Waddon, Croydon and Purley. These contribute an average of about 12MI/d. 90% of the downstream flow of these two rivers is derived from treated sewage effluent and surface run-off as is a significant proportion of flow in the Beverley Brook.



The underlying cause of recent flooding is continuing urbanisation both in the floodplain and throughout the catchment. Several amber flood warnings and one red warning have been issued on the River Wandle and Beverley Brook since 1986. The creation of flood storage areas, as part of an integrated surface water management strategy, in the upper parts of the catchments may prevent the need for future investment in flood protection schemes and provide added benefits in terms of water quality, conservation, recreation and education. NRA TR is currently investigating the enhancement potential associated with the "softening" of existing flood defences on the Hogsmill River, much of which is owned by the NRA, without compromising standards of service.

ECOLOGICAL STATUS.

Ecological status is assessed by the combination of a variety of results from fish, macroinvertebrate, habitat and other surveys. Sections of good biological quality, as indicated by macroinvertebrate surveys, do occur in the upper reaches of the River Wandle, Hogsmill River and some of its tributaries and in the overflow stream from Pen Ponds on the Beverley Brook. Other reaches have been identified as critical in terms of the need to preserve the existing in-stream and bankside habitats eg. the River Wandle at Watermeads and Morden Hall Park. No one method in isolation can be used to obtain a fair assessment of overall ecological status.



RECREATION AND AMENITY STATUS.

NRA TR recreation strategy fully supports improving safe access to open waters and many Local Authorities contain statements of intent within their development plans to develop riverside walks. Where such recreational initiatives are promoted they should not be to the detriment of the ecological value of the river channel, banks and corridor.

DRAFT CATCHMENT VISION

The Draft Vision for this Catchment Management Plan is founded on the integration of three principal components. Their successful combination will enable conflicting demands on the River Wandle, Beverley Brook and Hogsmill River catchment to be balanced and pass it on to future generations in an improved condition.



Community involvement is the cornerstone of this approach to managing the local water environment not only by raising awareness of the issues but also by promoting active participation in environmental enhancements. Greater community awareness of the issues will bring with it more responsible citizenship as water users become more aware of their rights and duties in respect of the local water environment. Environmental sustainability embodies this concept of stewardship and involves seeking consensus on decisions regarding future development but only after full consideration of its effects on the water environment. To further ensure that the needs of the present community can be met without compromising the ability of future generations to achieve their own needs, adaptive management is built into the catchment planning process to cope with changes in political, economic and physical processes.

YOUR VIEWS

This document and the **Consultation Report** have been prepared as a means of undertaking detailed consultation with all interested parties.

When responding to us we hope that you will tackle both points of detail and strategic issues. In particular we would like to hear from you if;

- you think there are additional issues which have not been identified;
- you think there are additional options for action which have not been identified;
- you have any views on the issues and options suggested;
- you have any relevant comments on the catchment and its future management.



During the formal consultation period please submit your comments to:

Mr. Mark Hodgins,
Wandle/Beverley/Hogsmill CMP,
National Rivers Authority Thames Region,
Riverside Works, Fordbridge Road,
Sunbury-on-Thames, Middlesex,
TW16 6AP. Telephone : 01932 789833.
FAX: 01932 786463.

All comments must be received by the **31st of January 1995**.

The Consultation Report is available for inspection at local libraries and Local Authority offices. A copy of the plan can be obtained from the NRA TR at the above address. After the period of public consultation a **Final Plan** will be prepared which will include an action plan for the catchment.

In this booklet we describe the catchment and its current condition. We then present our Draft Vision and a number of possible actions for comment and debate. It is anticipated that 'working groups' involving interested parties will be set up to debate the way forward on any contentious issues during the formal consultation period or shortly afterwards.

CATCHMENT ISSUES AND OPTIONS

The following list of 30 issues have been identified as a result of information held within NRA TR and following informal consultation with Local Authorities and other organisations. Preliminary options for resolving these issues are suggested.

ISSUE 1 : POOR WATER QUALITY D/S OF THE SEWAGE TREATMENT WORKS.

- Revise discharge consents and implement changes to plant to meet River Ecosystem Class 4 objective.
- Investigate cost/benefit of a long term water quality objective of River Ecosystem Class 3.

ISSUE 2 : LINDANE CONCENTRATIONS EXCEED STANDARDS.

- NRA TR, Thames Water Utilities, HMIP to produce a co-ordinated strategy of action to reduce loadings of Lindane on the aquatic environment as stipulated by North Sea Conference.

ISSUE 3: IMPACT OF URBAN STORM WATER RUN-OFF ON RIVER WATER QUALITY.

- Ensure that flow balancing requirements for all new developments are designed to optimise water quality.
- Investigate potential for substituting porous surfaces for impervious ones where appropriate.

ISSUE 4: NUISANCE MIDGE SWARMS BELOW SEWAGE TREATMENT WORKS.

- Introduce more stringent suspended solids limits during revision of consents.
- Continue to jet wash silts.
- Change river channel morphology to discourage sedimentation.

ISSUE 5: CONFLICT BETWEEN INCREASED PUBLIC ACCESS TO WATERFRONT AND PUBLIC HEALTH.

- NRA TR and Local Authorities to inform public of associated health risks.
- Improve bacteriological quality of rivers by seeking removal of illegal sewer connections to the surface water system and promotion of flood storage ponds.
- Investigate the cost/benefit of improving bacteriological quality of treated sewage effluent.

ISSUE 6: PRESENCE OF BLUE-GREEN ALGAE IN RICHMOND PARK PONDS.

- NRA TR to continue to monitor on a reactive basis and inform Local Authority and Royal Parks Agency of bloom conditions.

ISSUE 7: FREQUENT POLLUTION INCIDENTS.

- Carry out publicity campaign to promote awareness/consequences of pollution.
- Undertake programme of inspections of local high risk sites and advise on pollution prevention
- Develop and improve methods for alleviation/containment of oil/chemical spillages.

ISSUE 8: VULNERABILITY OF LOCAL GROUNDWATER TO POLLUTION

- Promote NRA "Policy and Practice for Protection of Groundwater".
- Give pollution prevention guidance to all users of oils/fuels/chemicals on storage and handling
- Ensure new development/infrastructure incorporates suitable pollution mitigation measures.
- Improve and review groundwater monitoring programme.
- Develop an integrated surface water management strategy for the catchment.

ISSUE 9 : DRYING-UP OF SPRING FED PONDS AT THE SOURCE OF RIVER WANDLE

- Investigate extent of the problem and action report recommendations.

ISSUE 10 : POTENTIAL IMPACT OF DEVELOPMENT PROPOSALS ON LOCAL GROUNDWATER RESOURCES WHICH MAY LEAD TO UNDESIRABLE ENVIRONMENTAL CONSEQUENCES.

- Set minimum acceptable groundwater levels for water related conservation sites.
- Identify development pressure points and ensure development plans promote suitable policies for sustainable water resource usage.
- Promote efficient use of water throughout the catchment.

ISSUE 11 : LACK OF HISTORIC AND MODELLED FLOODING DATA AGAINST WHICH TO ASSESS FLOOD DEFENCE STANDARDS OF SERVICE.

- Construct full hydraulic mathematical model for the catchment.

ISSUE 12 : REDRESS THE BALANCE BETWEEN THE NEED FOR FLOOD PROTECTION ON THE HOGSMILL RIVER AND ENVIRONMENTAL REQUIREMENTS.

- Rebuild completely the existing river channel following cost/benefit analysis.
- Modify the existing river channel as one scheme following cost/benefit analysis.
- Modify the existing channel on a piecemeal basis as bankside redevelopment opportunities arise.

ISSUE 13 : LOW BASE FLOWS IN THE BEVERLEY BROOK DOWN-STREAM OF THE FLOOD RELIEF CHANNELS.

- Investigate the consequences of increasing the height of the weirs at Priest's Bridge.

ISSUE 14 : NRA TR HAS NO EFFECTIVE LEGISLATIVE CONTROL IN SETTING RUN-OFF/STORAGE CRITERIA FOR SURFACE WATER FROM NEW DEVELOPMENTS WITHIN "RED" ZONES.

- Complete the surface water zoning exercise for the River Wandle and Hogsmill River.
- Seek inclusion of appropriate policies in statutory development plans.
- Seek changes to existing legislation.

ISSUE 15 : DEFICIENCY OF PERMANENT WATERBODIES WITHIN FLOOD STORAGE AREAS.

- Permanent waterbodies should be considered at the design stage of new flood storage areas.
- Investigate potential of retrofitting and maintaining permanent waterbodies within existing flood storage provision in the catchment.

ISSUE 16 : NEED TO MAXIMISE ENVIRONMENTAL / RECREATIONAL POTENTIAL ASSOCIATED WITH STRATEGIC PROVISION OF FLOOD STORAGE WITHIN THE BMAO.

- Work with Thames Water, Local Authority and other interested parties to realise the potential of the BMAO following gravel extraction.

ISSUE 17 : NEED FOR APPROPRIATE MANAGEMENT TECHNIQUES FOR SPECIFIC REACHES OF RIVER BANK AND CHANNELS THROUGHOUT THE CATCHMENT.

- Compile "river reach maps" and guidance notes for internal and external use.

ISSUE 18 : INSUFFICIENT DATA ON RIVER LEVELS ON THE UPPER REACHES OF THE BEVERLEY BROOK AND THE NORBURY BROOK.

- Install appropriate river level gauges.

ISSUE 19 : ECOLOGICAL STATUS OF THE RIVERS CANNOT BE ASSESSED BY ANY ONE METHOD IN ISOLATION.

- Continue to conduct intensive surveys on an integrated basis to provide comprehensive chemical and biological data.

ISSUE 20 : NEED TO PROTECT EXISTING IMPORTANT IN-STREAM AND BANKSIDE HABITATS.

- Complete river landscape surveys on the River Wandle and Beverley Brook
- Promote suitable policies to Local Authorities for inclusion in statutory development plans.

ISSUE 21 : REQUIREMENT TO PROTECT BIOLOGICAL STATUS OF HEADWATERS.

- Instigate pollution prevention programme on headwaters.
- Complete species level surveys on headwaters of River Wandle and Beverley Brook.
- Seek adoption of appropriate policies in statutory development plans.

ISSUE 22 : EXTENT OF ARTIFICIAL RIVER CHANNEL AND CORRIDOR.

- As opportunity arises, promote more environmentally friendly defences using techniques outlined in the Rivers and Wildlife Handbook.

ISSUE 23 : LACK OF A CLEAR DEFINITION OF EFFECTIVE BUFFER ZONE WIDTH.

- Identify effective widths for specific river reaches and make information available externally.

ISSUE 24 : ENVIRONMENTAL IMPACT OF SUBSTANTIAL WATER CONTROL STRUCTURES.

- Coarse fish passes should be built into existing structures when renovated.
- Any proposed new structures should be subject to full environmental impact assessment.

ISSUE 25 : ENVIRONMENTAL IMPACT OF THE HALF-TIDE WEIR AT THE MOUTH OF THE RIVER WANDLE.

- Relevant organisations to work together to seek removal of the weir and enhancement of the tidal creek.

ISSUE 26 : POTENTIAL CONFLICT BETWEEN RECREATION AND CONSERVATION USES OF RIVERS AND LAKES.

- All interested parties to agree appropriate management strategies to resolve existing/future conflict between competing uses.

ISSUE 27 : SAFETY RISK TO SMALL CRAFT ON THE RIVER THAMES FROM TRIBUTARY INFLOWS ESPECIALLY DOWNSTREAM OF THE HOGSMILL RIVER.

- Investigate extent of the problem with all interested parties and implement report recommendations.

ISSUE 28 : IMPACT OF RUBBISH AND LITTER ON THE WATER ENVIRONMENT.

- Promote and co-ordinate anti-litter and tidy river bank campaigns such as the annual River Wandle clean-up day.
- Promote local pride and concept of public ownership of the water environment through the CMP process.

ISSUE 29 : THE NEED TO PROTECT AND ENHANCE STILL WATERS THROUGHOUT THE CATCHMENT.

- Develop an integrated strategy with all interested parties to balance the needs between competing uses and to protect and enhance the existing still water resource within the catchment.

ISSUE 30 : THE NEED TO PROMOTE WATER ENVIRONMENT ISSUES AT A LOCAL LEVEL WITHIN THE CATCHMENT ESPECIALLY VIA FORMAL EDUCATION.

- Promote NRA RIVERWORK teaching pack and National RiverWATCH scheme.
- Revise and update NRA River Fact File for the Wandle/Beverley/Hogsmill.
- Develop ecological “indicators” for the water environment with interested parties and adapt for use within local schools.

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NRA

*National Rivers Authority
Thames Region*

The Wandale, Beverley Brook and Hogsmill Catchment Management Plan
National Rivers Authority Thames Region
Riverside Works, Fordbridge Road,
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To: Anne Binks

16 Feb. 1995

From: Mark Hodgins

Wandle, Beverley Brook, Hogsmidi CWP

As promised; one of the batch we rejected
because of sub-standard maps. All the
"good" ones now in hands of consultees.

WITH COMPLIMENTS



20 FEB 1995
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