National Rivers Authority
Thames Region
Catchment Planning - West

River Thame

Catchment Review

1st DRAFT (16th February 1996)

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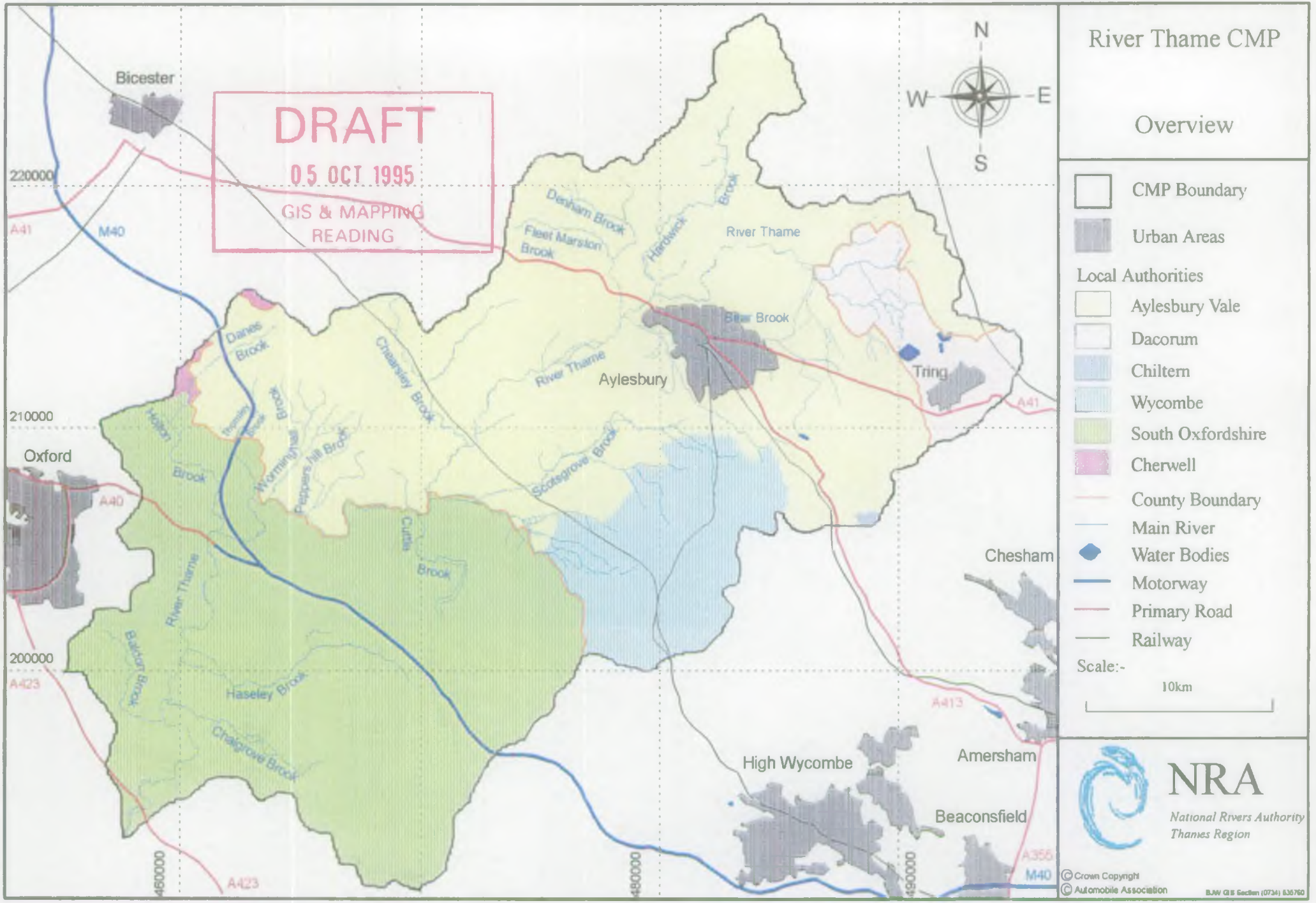
River Thame CMP
Overview
DRAFT
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GIS & MAPPING
READING
N
W
E
S
CMP Boundary
Urban Areas
Local Authorities
Aylesbury Vale
Dacorum
Chiltern
Wycombe
South Oxfordshire
Cherwell
County Boundary
Main River
Water Bodies
Motorway
Primary Road
Railway
Scale:-
10km
Bicester
Oxford
Aylesbury
Tring
Chesham
Amersham
High Wycombe
Beaconsfield
220000
210000
200000
460000
480000
500000
A41
M40
A40
A423
A413
A355
Desham Brook
Fleet Marston Brook
Hardwick Brook
River Thame
Bear Brook
Danes Brook
Thomley Brook
Worminghall Brook
Cheesley Brook
Poppers Hill Brook
Scotsgrove Brook
Holton Brook
Curtis Brook
Haseley Brook
Chalgrove Brook
Baldon Brook
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FIG 1

1.0 INTRODUCTION

The National Rivers Authority (NRA) was established in the Water Act 1989. The NRA has defined its role in the following "mission statement":

> *'We will protect and improve the water environment by the effective management of water resources and by substantial reductions in pollution. We will aim to provide effective defence for people and property against flooding from rivers and the sea. In discharging our duties we will operate openly and balance the interests of all who benefit from and use rivers, groundwaters, estuaries and coastal waters.'*

In order to effectively manage the water environment and sustain it for the future, the NRA has adopted the principle of Catchment Management Planning. This entails the preparation of Catchment Management Plans (CMP) for each natural river catchment within England and Wales. Through data evaluation, issues analysis, external liaison and consultation, the CMP provides a vehicle to focus attention on the water environment. The process involves all interested parties, in planning for the future well being of the catchment and establishes an integrated plan of action for managing the catchment over a period of five years, after which it is reviewed.

However, as a precursor to the commissioning of the Catchment Management Plans, brief and succinct Catchment Reviews such as this are being drafted which will:

- provide a concise summary of the current status of the water environment;
- make full use of the knowledge of internal staff and their assessments of the value of the catchment to people and wildlife;
- provide a focus for integrating on-going NRA functional activities;
- promote, region-wide awareness of issues and opportunities and priorities for action;
- facilitate the prioritisation and production of Catchment Management Plans.

The following review will provide a summary of catchment statistics, issues, current and future proposed NRA activity in order to achieve a broad awareness of potential opportunities and constraints. The document will also form the basis of the full Catchment Management Plan which will provide the focus for those concerned with the future well-being of the water environment of the area.

2.0 THE CURRENT STATUS OF THE WATER ENVIRONMENT

2.1 OVERVIEW

The Catchment Review study area covers the Thame catchment, as illustrated in the map at Fig.1. The study area covers approximately 683.9km^2 and is predominately rural in character with the main urban area being Aylesbury, with a population of 55,700. There are also a number of with smaller settlements including Thame, Tring and Princes Risborough (8,000). The study area has a population of approximately 90,000.

There are a number of tributaries to the Thame including:- Fleet Marston, Denham, Hardwick, Bear, Scotsgrove, Cuttle, Haseley, Chalgrove, Baldon, Holton, Danes, Thomley, Worminghall, Peppers Hill, Chersley Brooks.

2.2 GEOLOGY

The solid geology of the Thame catchment is characterised by a sequence of Jurassic and Cretaceous strata all dipping comparably in a south-easterly direction. As such, the geology appears as a succession of south-west to north-easterly elongated outcrops, with a progressive younging of the strata to the south-east.

Much of the north and west of the catchment is underlain by Oxford Clay and Kimmeridge Clay. These soft clays and mudstones form the flat relatively low-lying vales of the catchment, and the floodplain across which the Thame flows. This is only broken by the Corallian limestone and marls to the east of Oxford, and where isolated outcrops of higher ground occur such as at Brill and Long Crendon. Here, the harder limestones, silts and sands of the Portland Beds, Purbeck Beds and Whitchurch Sands cap the hills. These younger rocks also form a more continuous outcrop further to the east between Thame and Aylesbury.

Several erosional surfaces, or unconformities, exist within the geological succession causing parts of the sequence to be absent in places. The Lower Greensand Formation is limited to a few patchy outcrops as a consequence of this, and has been deposited on the erosional surfaces of the Kimmeridge Clay and Purbeck Beds.

Further to the south and east, and up-sequence, the Gault clay forms another outcrop of flat clay-land. Above this, the Upper Greensand is present as a distinct escarpment at the base of the larger north-west facing escarpment of the Chalk.

The top of the steep-sided Chalk escarpment forms the south-eastern boundary of the Thame catchment, with the dip slope of the Chiltern Hills falling away to the south-east. The Chalk sequence comprises Lower Chalk at the base, rising through Middle Chalk, with Upper Chalk forming the top of the escarpment at the catchment boundary.

Several drift formations have been deposited overlying the solid geology. Glacial and glacio-fluvial sands, gravels and clays cap parts of the higher ground outside of the valley bottoms in the northern part of the catchment. The Thame valley and its main tributaries are lined by a thin covering of alluvium and terrace gravels.

2.3 HYDROGEOLOGY

Much of the catchment is underlain by impermeable clays in which there is little groundwater flow of any significance. Where these clays outcrop, surface run-off will provide the dominant input to the river system.

The only major aquifers within the catchment are the Chalk and Upper Greensand. In places, these can form a single aquifer, but the presence of a double spring-line within the Chalk and Upper Greensand would suggest that the low permeability Chalk Marl that forms the lower part of the Lower Chalk acts as an aquiclude between the two. Spring-lines emerge from within the Lower Chalk at the Chalk Marl boundary, and near the contact between the Upper Greensand and the underlying impermeable Gault clay. To obtain higher yields, it is common for boreholes and wells in the area to extend through the Chalk and into the Upper Greensand.

The Portland and Purbeck Beds, Whitchurch Sands and Lower Greensand Formation all yield small quantities of groundwater that are tapped for domestic and agricultural use. Where these strata form outliers on high ground, the outcrop is drained by springs emerging at the base of the Portland Beds where they overlie the Kimmeridge Clay. Several small abstractions also exist within the Corallian beds.

2.4 WATER RESOURCES

The NRA's principal aim in relation to water resources is to:

- manage water resources to achieve the right balance between the needs of the environment and those of the abstractors.

To achieve this aim the NRA seeks to:

- plan for the sustainable development of water resources;
- collect, validate, store and provide hydrometric data;
- apply a nationally consistent approach to abstraction licensing;
- implement a consistent approach to the resolution of inherited problems;
- protect the quality of water resources.

Hydrometric Data

In order to ensure that there is sufficient information on water resources the NRA carries out regular measurements from flow gauging stations; groundwater monitoring boreholes; current meter gauges; and rain gauges which are located throughout the catchment.

A proportion of the rainfall falling on the catchment is subsequently lost as evaporation or transpiration. The remainder, termed the 'effective rainfall' is the total water resource available to the catchment in the form of either surface run-off or groundwater recharge.

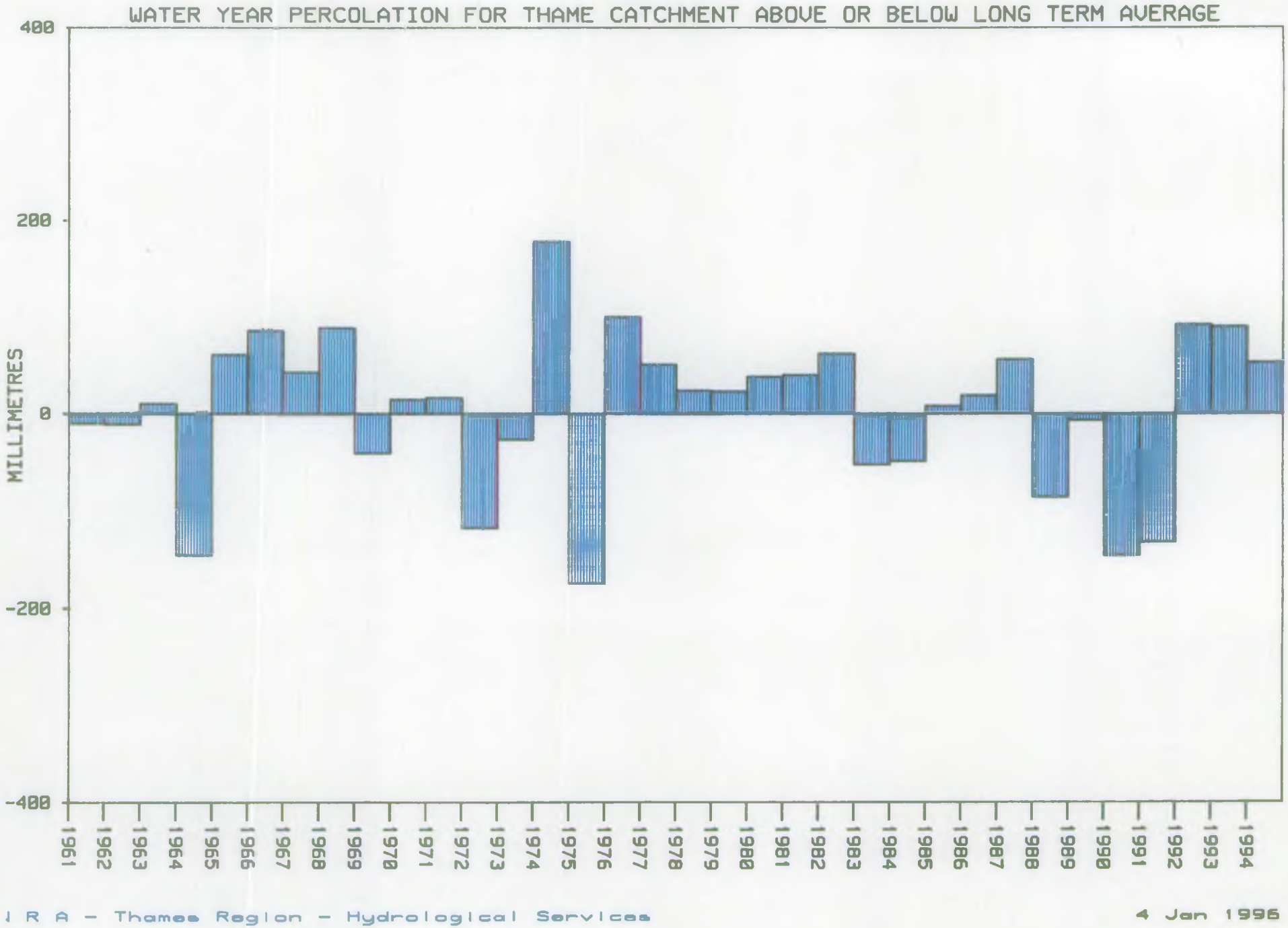
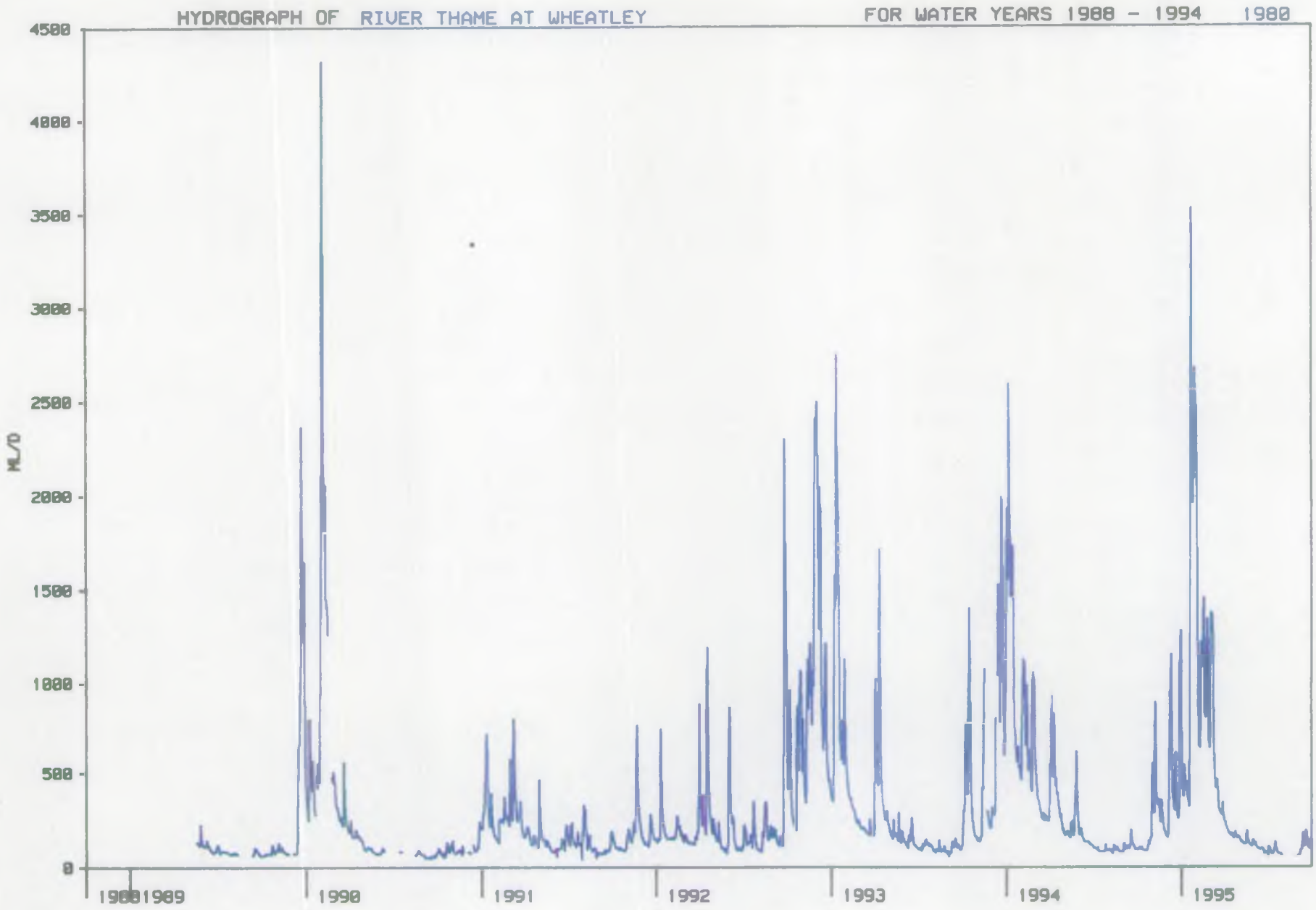

WATER YEAR PERCOLATION FOR THAME CATCHMENT ABOVE OR BELOW LONG TERM AVERAGE
400
200
0
-200
-400
MILLIMETRES
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
I R A - Thames Region - Hydrological Services
4 Jan 1995

FIG 2



NRA - Thames Region - Hydrological Services

29 Dec 1995

P142

The Thame catchment has an average annual rainfall of 650mm (taken from 1941-70). The average effective rainfall for the same time period, ie water resource available to the catchment as runoff or groundwater recharge is 175mm. The following graphs (Figs 2 and 3) show percolation for the Thame catchment and a hydrograph of the River Thame at Wheatley respectively.

Abstraction Licensing

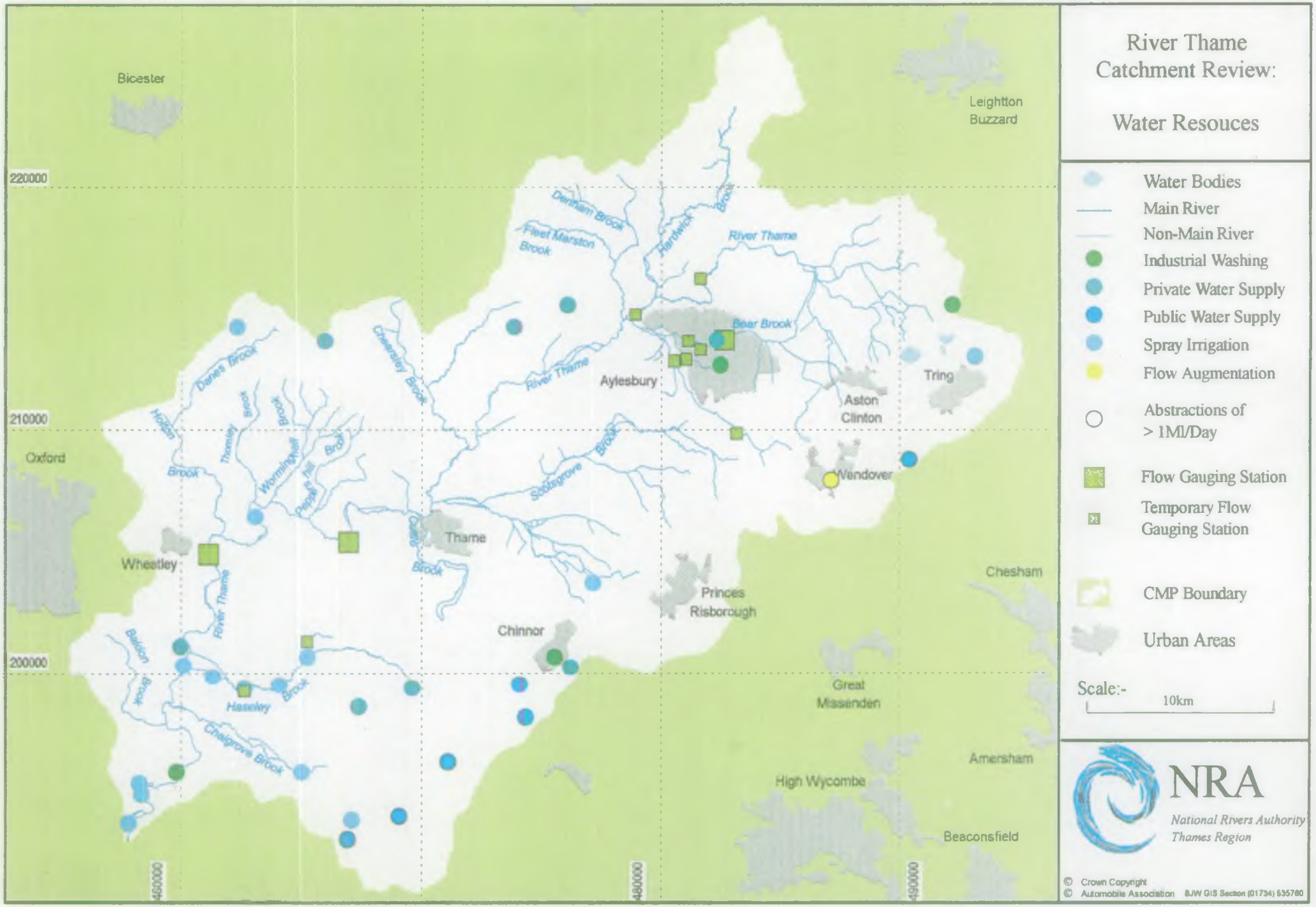
The NRA administers a system of licensing abstractions and has wide powers as to whether or not to grant a licence and to apply conditions.

There are currently 110 abstraction licences in force within the Thame catchment area. The map at fig. 4 shows the location of the major abstraction points and flow gauging stations within the study area, while the table below shows the number and type of licensed abstractions and actual abstractions for 1993.

Licensed and Actual Abstractions for 1993 (Ml\d)

Use	Licensed Abstraction			Actual Abstraction (1993)		
	Surface	Ground water	Total	Surface	Ground water	Total
Public water supply	-	5.88	5.88	-	3.54	3.54
Private water supply	0.05	0.01	0.06	0.01	0.01	0.02
Agricultural spray irrigation	0.93	0.05	0.98	0.22	0.01	0.23
Non-agricultural spray irrigation	0.03	0.04	0.07	0.01	0.01	0.02
Agriculture	0.03	0.83	0.86	0.02	0.75	0.77
Cooling	-	0.05	0.05	-	0.05	0.05
Industrial Process	0.63	1.16	1.79	-	0.70	0.70
Fish farm	0.36	-	0.36	0.01	-	0.01
Transfer	0.01	-	0.01	-	-	-
Augmentation/canal	-	4.80	4.80	-	4.80	4.80
Total	2.04	12.82	14.86	0.27	9.87	10.14

Thames Water Utilities Limited (TWUL) are the sole water and sewerage undertaker operating within the study area. Four of the Thames Water sites are aggregated together so there is a limit on the total abstraction.


River Thame
Catchment Review:
Water Resouces
Water Bodies
Main River
Non-Main River
Industrial Washing
Private Water Supply
Public Water Supply
Spray Irrigation
Flow Augmentation
Abstractions of
> 1Ml/Day
Flow Gauging Station
Temporary Flow
Gauging Station
CMP Boundary
Urban Areas
Scale:-
10km
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Thames Region
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Bicester
Leighton
Buzzard
Aylesbury
Tring
Aston
Clinton
Wendover
Thame
Oxford
Wheatley
Chinnor
Princes
Risborough
Chesham
Great
Missenden
Amersham
High Wycombe
Beaconsfield
220000
210000
200000
460000
480000
490000
River Thame
Bear Brook
Denham Brook
Fleet Marston
Brook
Hardwick
Brook
Chearsley Brook
Dares Brook
Hogtrough
Brook
Thornley Brook
Wormingshill
Brook
Peagull Hill
Brook
Sobbsgrove
Brook
Clattercote
Brook
Baldon
Brook
Hasseley
Brook
Chalgrove Brook

Fig 4

Development and Water Resources

Local Councils have expressed concern for water supply for Aylesbury however there is no deficit in supply before 2011 unless the growth in demand follows the high NRA forecasts. Recent growth has been below the low forecast.
The catchment is a net importer of water for public supply from Farmoor; New Ground and Hawridge; and Medmenham.

2.5 WATER QUALITY

One of the NRA's principle aims in relation to water quality is to:

- achieve a continuing improvement in the quality of rivers through the control of pollution.

To achieve this aim the NRA seeks to:

- maintain waters that are already of high water quality;
- improve waters of poorer quality
- ensure all waters are of an appropriate quality for their agreed uses

Assessment of Surface Water Quality

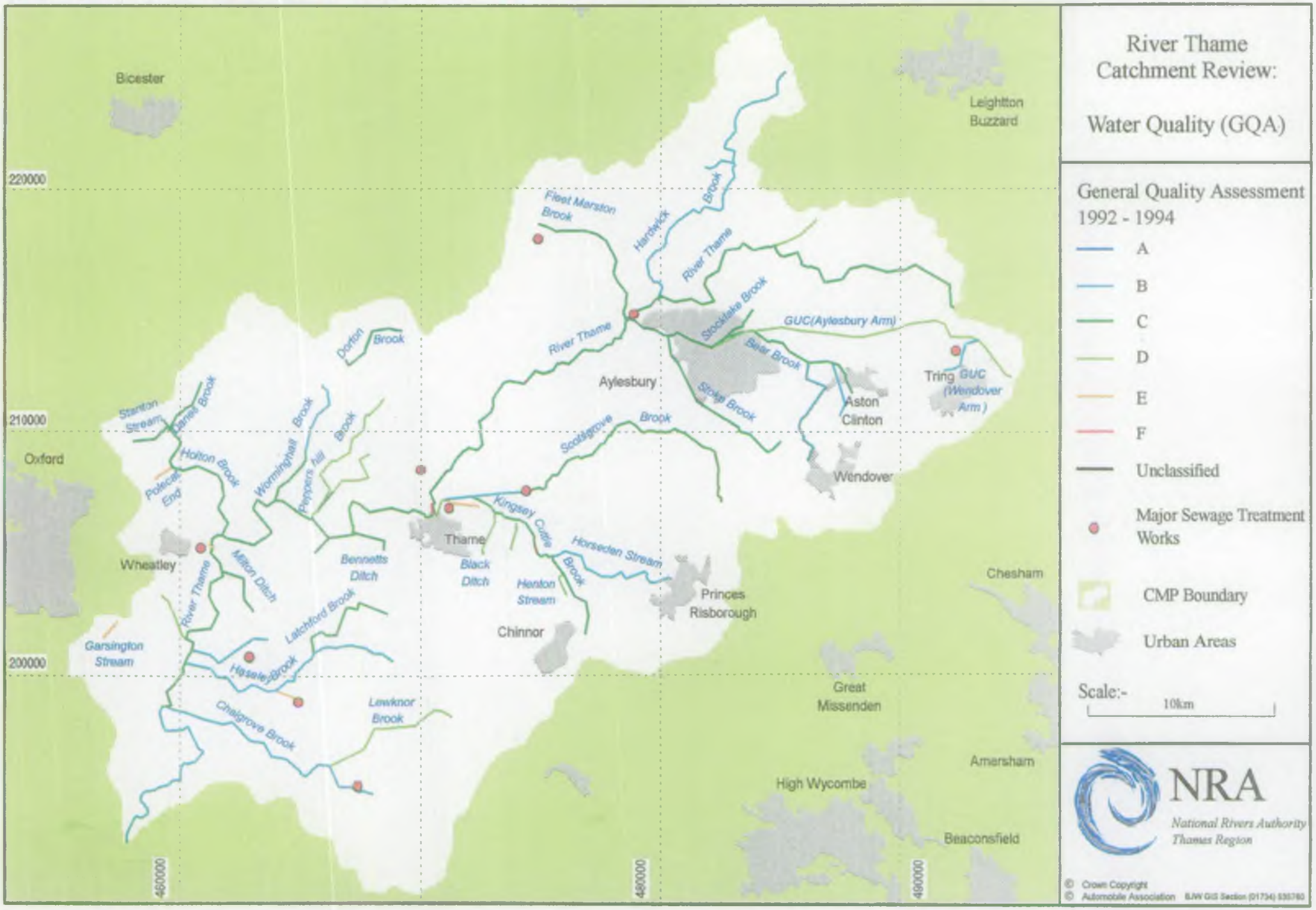
The NRA uses two schemes for the reporting and management of river water quality: the general quality assessment (GQA) scheme which allows monitoring of changes in river quality over time and in different areas and the water quality objectives (RQO) scheme which is used to set river quality objectives based on uses.

General Quality Assessment

The GQA scheme is used to make regular assessments of the quality of rivers to monitor trends over time and to compare rivers in different areas. Four components are being developed for the GQA assessment -general chemistry, nutrients, aesthetics and biology - each providing a discrete 'window' on the quality of the river stretches. The general chemistry component of the GQA is now in use. It is made up of six grades defined by standards for Dissolved Oxygen, BOD and Total Ammonia (see table below).

GQA CLASSIFICATION

Class	Dissolved Oxygen % saturation 10%ile	BOD mgl^{-1} 90%ile	Total Ammonia mg N l^{-1} 90%ile
A	> 80	< 2.5	< 0.25
B	> 70	< 4.0	< 0.6
C	> 60	< 6.0	< 1.3
D	> 50	< 8.0	< 2.5


River Thame
Catchment Review:
Water Quality (GQA)
General Quality Assessment
1992 - 1994
A
B
C
D
E
F
Unclassified
Major Sewage Treatment Works
CMP Boundary
Urban Areas
Scale:-
10km
NRA
National Rivers Authority
Thames Region
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Bicester
Leighton Buzzard
Oxford
Aylesbury
Tring
Aston Clinton
Wendover
Thame
Wheatley
Chinnor
Princes Risborough
Chesham
Great Missenden
Amersham
High Wycombe
Beaconsfield
Fleet Marston Brook
Hardwick Brook
River Thame
Stocklake Brook
GUC(Aylesbury Arm)
Bear Brook
Stoke Brook
GUC (Wendover Arm)
Dorton Brook
Scotsgrove Brook
Kingsey Cuttle Brook
Horsecten Stream
Henton Stream
Black Ditch
Bennetts Ditch
Milton Ditch
Latchford Brook
Hassle Brook
Lewknor Brook
Chalgrove Brook
Garsington Stream
Stanton Stream
Danes Brook
Holton Brook
Polecat End
Wormingshall Brook
Peppers hill Brook
220000
210000
200000
460000
480000
480000

FIG 5

E	>20	<1.5	<9.0
F	-	-	-

The remaining three windows are still under development and will be applied when available. The GQA chemical quality of watercourses in the Thame Catchment for the period 1992-1994 is shown on map at fig 5 and the table at Appendix 1.

Water Quality Objectives

The WQO scheme establishes quality targets based on the uses of the watercourse, to provide a commonly agreed planning framework for regulatory bodies and dischargers. The proposed SWQO scheme is based upon the recognised uses to which a river stretch may be put. These uses could eventually include: River Ecosystem; Special Ecosystem; Abstraction for Potable Supply; Agricultural/Industrial Abstraction; and water sports. The standards defining the five River Ecosystem (RE) use classes, which address the chemical quality requirements of different types of aquatic ecosystems, were introduced by the Surface Waters (River Ecosystem Classification) Regulations 1994. (Standards for further uses are still under development.) For each stretch of river, an RE class RQO will be assigned, including a date by which this level of water quality should be achieved. Until SWQOs are formally established by legal Notice served by the Secretary of State, and therefore exist on a statutory basis, RQOs will be applied on a non-statutory basis with appropriate RE classes and target dates, that is, dates when the objectives are to be achieved.

The WQO scheme also allows for long-term objectives. These are objectives which we hope to have attained beyond the next ten years. In order to set long-term objectives it is important to determine the need for further water quality improvements within the catchment.

Water quality improvements cost money and in many cases it is the public who pay the bill for these improvements either directly or indirectly. So it is important to relate the cost of any proposed improvements to their benefits when deciding on whether or not individual schemes should go ahead. Cost benefit analyses will also be used in helping to assign priorities for improvement schemes.

Descriptions of the Five River Ecosystem Classes:

Class RE1: Water of very good quality suitable for all fish species.

Class RE2: Water of good quality suitable for all fish species.

Class RE3: Water of fair quality suitable for high class coarse fish populations.

Class RE4: Water of fair quality suitable for coarse fish populations.

RIVER ECOSYSTEM CLASSIFICATION

Class	Dissolved Oxygen % saturation 10%ile	BOD mgl^{-1} 90%ile	Total Ammonia mg N l^{-1} 90%ile	Un-ionised Ammonia mg N l^{-1} 95%ile	pH lower limit as 5%ile upper limit as 95%ile	Hardness mg/l $CaCO_3$	Dissolved Copper $\mu g/l$ 95 %ile	Total Zinc $\mu g/l$ 95 %ile	General Description
RE1	> 80	< 2.5	< 0.25	< 0.021	6.0-9.0	≤ 10 > 10 and ≤ 50 > 10 and ≤ 100 > 100	5 22 40 112	30 200 300 500	Very good quality (suitable for all fish species)
RE2	> 70	< 4.0	< 0.6	< 0.021	6.0-9.0	≤ 10 > 10 and ≤ 50 > 10 and ≤ 100 > 100	5 22 40 112	30 200 300 500	Good quality (suitable for all fish species)
RE3	> 60	< 6.0	< 1.3	< 0.021	6.0-9.0	≤ 10 > 10 and ≤ 50 > 10 and ≤ 100 > 100	5 22 40 112	300 700 1000 2000	Fair quality (suitable for high class coarse fish populations)
RE4	> 50	< 8.0	< 2.5	-	6.0-9.0	≤ 10 > 10 and ≤ 50 > 10 and ≤ 100 > 100	5 22 40 112	300 700 1000 2000	Fair quality (suitable for coarse fish populations)
RE5	> 20	< 15.0	< 9.0	-	-	-	-	-	Poor quality (likely to limit coarse fish populations)

FIG. 6

Class RE5: Water of poor water quality which is likely to limit coarse fish populations.

Unclassified: Water of bad quality in which fish are unlikely to be present or insufficient data available by which to classify water quality.

Chemical standards have been derived for each of these classes and details of these standards are given in the table at fig 6.

The new River Ecosystem classes will be used to set river quality objectives for the Thame Catchment. The objectives will be set in line with the CMP timetable. The water quality objectives will been set taking into account current and future uses of the watercourses in this catchment. The compliance of watercourse reaches with their objectives is judged against a rolling, three calendar year period.

The table at appendix 1 shows RE achievement in the period 1992 to 1994.

2.6 EFFLUENT DISPOSAL

All effluent disposal is controlled by discharge consents which have a quality standard as part of the conditions of disposal. They are sampled regularly to assess their achievement against these quality standards. Any discharger who consistently fails to comply with the consented standard is liable to be prosecuted by the NRA.

There are a total of 187 consented discharges within the Thame catchment. The table at Appendix 2 lists all consented discharges with sample points in the catchment.

2.7 POLLUTION CONTROL AND PREVENTION

The reporting of pollution incidents has continued to grow over recent years largely due to better communications and reporting lines and better understanding by the public of water pollution following greater publicity. Pollution incidents are categorised into major, significant and minor.

During 1994 there were 86 pollution incidents reported in the Thame catchment which were substantiated as being actual cases of pollution. There were a further 26 reports which were unsubstantiated. A breakdown of the different types of pollution is shown in the table below.

Pollution Incident Data 1994

Type of Pollutant	Number of Incidents
Oil	27
Chemical	7
Sewage	17
Natural	8
Agriculture	15
General	8

Urban Runoff	1
Not Known	3
Total substantiated incidents	86

Out of these pollution incidents the cases listed in the table below resulted in prosecution.

Prosecutions for pollution offences

Company	Pollutant	Year	Fine (£)
Luton & District Transport Ltd, Aylesbury	Oil	1993	2000
Cherry Tree Nursing Home, Bledlow-cum-Saunderton	Sewage Effluent	1993	Caution
Agetur (UK) Ltd, Development site at Tring	Silt	1994	2,500
Sony Music Entertainment (UK) Ltd, Aylesbury	Oil	1994	Caution
C J Davis, Corner Farm, Bierton	Cattle slurry	1994	500
R W Davis, Corner Farm, Bierton	Cattle slurry	1994	500
Central Fuel Supplies, Chalgrove	Oil	1994	Caution

One of the ways of reducing the numbers of incidents is to encourage the use of pollution prevention techniques. In the Thame catchment area various campaigns are in progress, an planned to extend the principles of prevention being better than cure.

Visits by the pollution prevention team have been carried to most of the industrial premises on the Rabans Lane, Gatehouse Way and Stocklake areas in Aylesbury. Premises in Thame are in the next year's programme. In addition there is an on-going farm campaign covering the Upper Thame which is around 60% complete.

2.8 GROUNDWATER QUALITY

The NRA has a duty under the Water Resources Act, 1991 to monitor and protect the quality of groundwater. To assist this duty the NRA has published a document entitled "Policy and Practice for the Protection of Groundwater" which is used as a framework for decision-making on groundwater issues.

NRA (Thames) have produced a groundwater vulnerability map for the region and are in the process of defining groundwater protection zones.

2.9 BIOLOGICAL WATER QUALITY

The NRA also carries out biological monitoring to provide additional water quality information. The health of rivers is reflected by the variety and abundance of the animal and plant life that they support. NRA biologists routinely monitor various classes of aquatic organisms which act as indicators to the effects of water quality. Biological indicators provide an assessment of water quality integrated over a time period of similar scale to the organisms generation time.

Families of macroinvertebrates, which are small and relatively immobile animals (including insects larvae, snails, crustaceans etc.) are principal indicator organisms monitored. Each group has been assigned a score of 1 to 10 on the basis of its sensitivity to organic pollution. A Biological Monitoring Working Party (BMWP) score for a sample is the cumulative score for all the families present. The presence of pollution sensitive families will produce a high BMWP and scores over 100 generally indicate good biological quality while scores below 20 suggest severe pollution. Care is required in interpretation of results since habitat and other physical factors also effect the BMWP score.

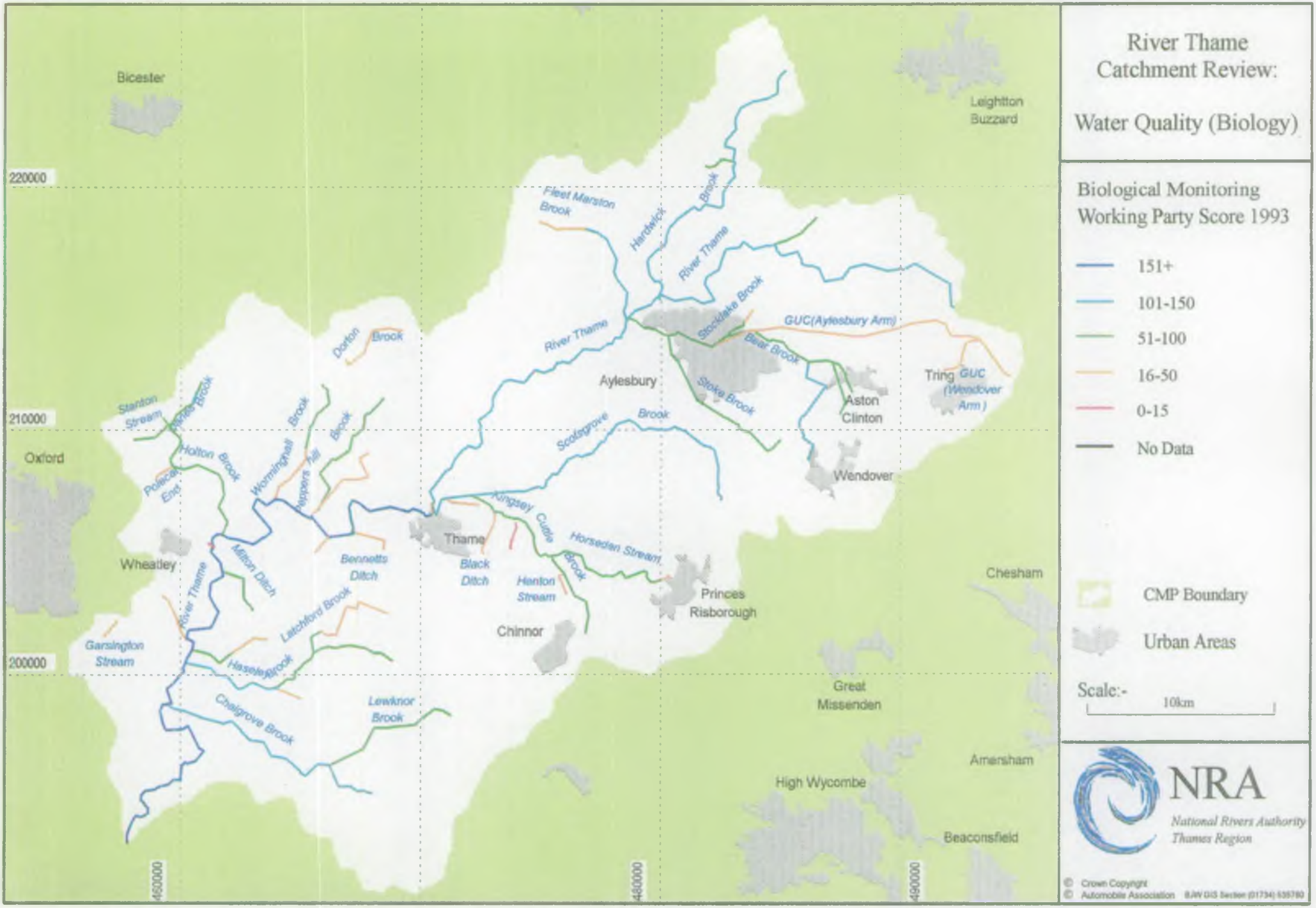
Biological assessments are made at sites which complement chemical monitoring programmes, with sites chosen to represent water quality in River Reaches. Further spatial coverage is provided by more detailed surveys of individual catchments timed to coincide with CMP production. Standard sampling methods which are used by the NRA have been developed in collaboration with the Institute of Freshwater Ecology (IFE). Results are validated by an internal quality control procedure (AQC) and an external audit conducted by IFE.

A summary of the biological monitoring in the Thame Catchment is given in the Table at Appendix 3 and on the map at fig 7. BMWP scores shown are for those from the most recent sample since 1990. It can be seen that biological quality is very high throughout the River Thame with scores well in excess of 100 at most sites. There are no watercourses with very poor biological quality scoring less than 15 and most of the main tributaries are of moderate (BMWP scores 50-100) to good (BMWP scores 100-150) quality. There are 13 smaller ditches which are of poor quality scoring under 50.

Analysis of the National NRA biology database has identified taxa which are nationally rare, being found in less the 1% of samples taken prior to 1990. Ten of these occur in the Thames Region, and 6 are present in the Thame Catchment. These include Beraeidae caddis fly larvae which are present throughout the Danes Brook. Other rare taxa supported by the catchment are Libellulidae and Gomphidae dragonfly larvae, Hirunidae leeches and Mesovelidae.

Bacteriological Status

Faecal coliform bacteria, which are normally resident in the guts of warm-blooded animals, are used as indicators of pollution in all types of waters. The presence of such bacteria also


River Thame
Catchment Review:
Water Quality (Biology)
Biological Monitoring
Working Party Score 1993
151+
101-150
51-100
16-50
0-15
No Data
CMP Boundary
Urban Areas
Scale:-
10km
NRA
National Rivers Authority
Thames Region
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Bicester
Leighton Buzzard
Oxford
Aylesbury
Tring
Aston Clinton
Wendover
Thame
Wheatley
Chinnor
Princes Risborough
Chesham
Great Missenden
Amersham
High Wycombe
Beaconsfield
220000
210000
200000
460000
480000
490000
Fleet Marston Brook
Hardwick Brook
River Thame
Stockdake Brook
GUC(Aylesbury Arm)
Beat Brook
Stoke Brook
GUC (Wendover Arm)
Scotsgrove Brook
Kingsey Cuttle Brook
Horsedan Stream
Black Ditch
Henton Stream
Bennetts Ditch
Milton Ditch
Latchford Brook
Haseley Brook
Chalgrove Brook
Lewknor Brook
Garsington Stream
Stanton Stream
Holton Brook
Wormingshall Brook
Dorton Brook
Poleacat End
Peppers Hill Brook

FIG. 7

indicates the potential presence of pathogens. Faecal material may originate from point sources (eg. effluents form sewage treatment works), or diffuse sources (eg. agricultural land, urban run-off or misconnections of sewerage into surface water drains). Faecal bacteria can survive in water for varying lengths of time but do not multiply.

NRA Thames Region has a rolling programme for bacteriological monitoring of surface waters. The following is a brief interpretation of the monitoring to date:

Sixteen sites in the Thame catchment were sampled four times during 1992.

Of the eight sites sampled on the River Thame, those at Wheatley, Ickford and Dorchester Bridges had low geometric mean levels of faecal coliforms (< 1000/1000ml), while those from the other six were considered moderate (1000 -10 000/100ml). Aylesbury STW was responsible for elevating mean faecal coliform counts form 1012/100ml at Stone Bridge, Aylesbury to 6370/100ml upstream of Eythorpe Lake.

The Grand Union Canal at Aston Clinton had an exceptionally low geometric mean faecal coliform count of 86/100ml. Of the other tributaries sampled, the Fleet Marston and Haseley Brooks had faecal coliforms present at low levels, while the Bear, Scotsgrove, Hardwick, Gainsbridge and Worminghall Brooks all had geometric means at moderate levels. (Each of the tributaries was sampled just upstream of their confluence with the main River Thame).

2.10 FLOOD DEFENCE

The NRA's principal aims in relation to flood defence are to:

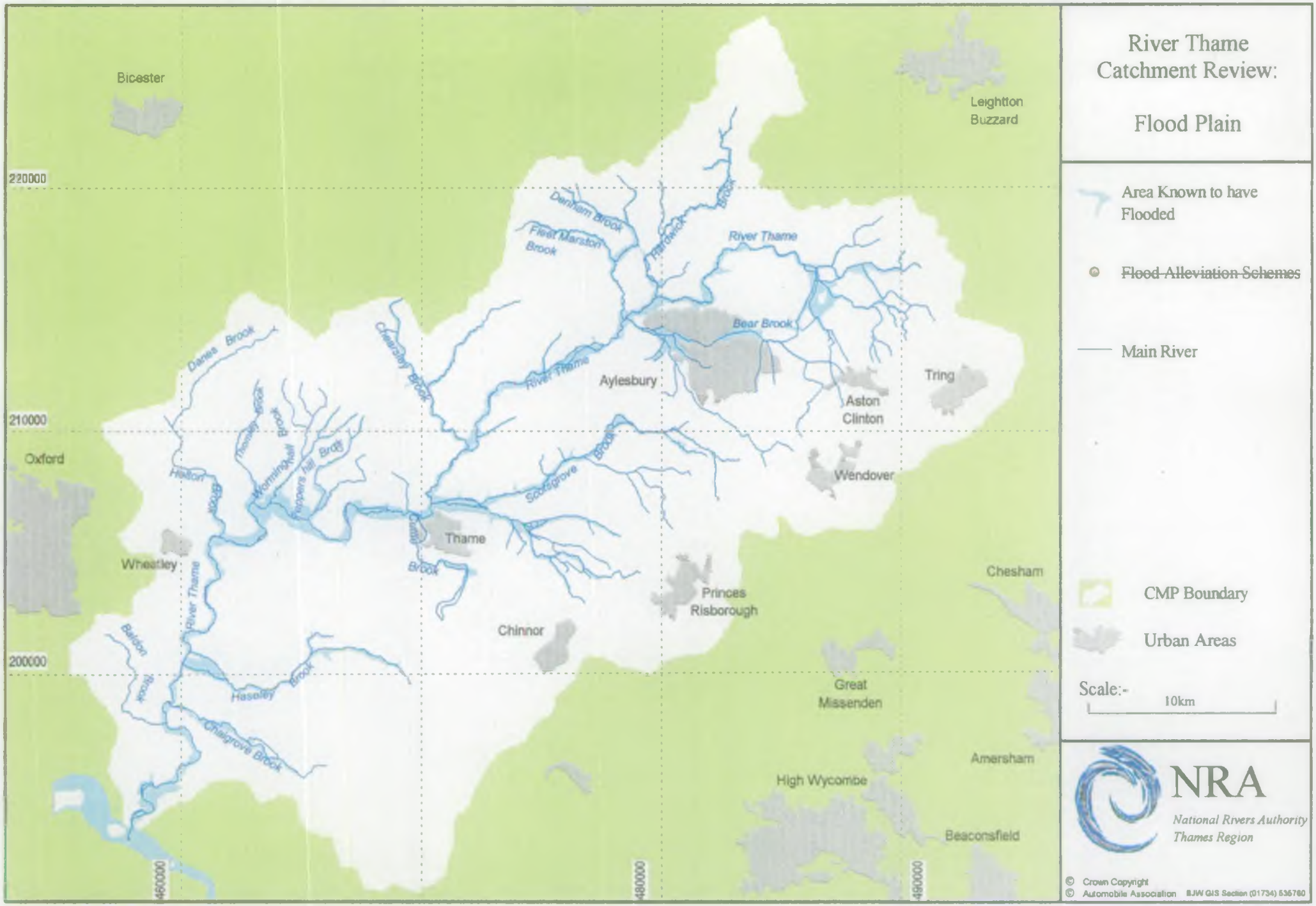
- provide effective defence for people and property against flooding from rivers;
- provide adequate arrangements for flood forecasting and warning.

To achieve this aim the NRA will seek to:

- develop plans for defences owned and maintained by them;
- encourage development of information technology which will improve warning procedures;
- highlight awareness of the need to control development in floodplains; identify opportunities for the enhancement of environmental, recreational and amenity facilities

There is a quick flood response time owing to the Thame being a clay catchment. The Thame generally has a wide flood plain which is shown on the map at fig 8.

The Grand Union Canal's Aylesbury arm has quite an influence in the area east of Aylesbury, on the smaller tributaries of the Thame, owing to the reservoirs which feed the canal and spring flows.


River Thame
Catchment Review:
Flood Plain
Area Known to have Flooded
Flood Alleviation Schemes
Main River
CMP Boundary
Urban Areas
Scale:-
10km
NRA
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Thames Region
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Bicester
Leighton Buzzard
Aylesbury
Tring
Aston Clinton
Wendover
Oxford
Wheatley
Thame
Princes Risborough
Chinnor
Chesham
Great Missenden
Amersham
High Wycombe
Beaconsfield
220000
210000
200000
460000
480000
490000
River Thame
Bear Brook
Dorham Brook
Fleet Marston Brook
Hardwick Brook
Danes Brook
Thomley Brook
Worminghall Brook
Chearsley Brook
Scotsgrove Brook
Chilgrove Brook
Hasley Brook
Baldon Brook

FIG. 8

Much Drainage work took place from the 1940's onward to enhance agricultural land and increase domestic food production for the country. The effect of this work in the longer term has meant a need for more frequent maintenance for the rivers which had been engineered. A great deal of environmental damage was also caused to these altered watercourses which is now gradually being rectified.

Towns and villages are inspected and some worked on over a five year cycle to minimise the flood risk in each settlement. These are termed 'annuals' by the flood defence group. Of most important note are those starred to indicate that they receive the most frequent maintenance as they have been noted as at a higher risk of flooding (see Annuals table fig 9 and Towns and Villages table fig 10).

Flood Defence Standards of Service

As an aid to decisions on priorities for works the NRA has determined Standards of Service (SOS) for flood defence based on land usage within the flood plain. A hierarchical series of five land use bands has been established, based on the presence and concentration of certain features of land use. Each land use band has a target for the maximum flood risk to which it should be exposed. The standards are expressed as a percentage which reflects the likelihood that during any year a flood event may occur which exceeds the magnitude for which protection is available or should ideally be provided. The land use band table and SOS Reaches in the Thame Catchment appear at Appendix 4.

Section 105 Surveys

Local planning authorities and the NRA are required by a Department of the Environment circular, DoE circular 30/92 on Development and Flood Risk, to liaise closely on flooding and surface water runoff matters. The aim is to ensure that flood defence risks of development are an integral part of the decision making process undertaken by local planning authorities on relevant planning applications. In this respect the NRA has responsibility to prepare surveys under Section 105 of the Water Resources Act 1991 to define the nature and extent of flood risks. The preparation of such surveys is the subject of a 'Memorandum of Understanding' drawn together in March 1994 between representatives of local planning authorities and the NRA.

Flood Defence Schemes

There are a number of flood defence schemes within the Thame catchment, listed as follows:

1. Aylesbury Flood Alleviation Scheme
2. Minor Alleviation Schemes at Aston Clinton; Draytonmead Brook
3. Heavy maintenance work in Chalgrove.
4. Land Drainage Improvement works at various locations including Scotsgrove Brook
5. FD funded Environmental Enhancement projects at Nether Winchendon and other Thame sites.

FIG 10

PROGRAMMED WORK 1996–1997
* ANNUALS

River Name	No.	Reach	Total	Activity
~~Doddershall Brook~~	188/6	01	2000	CL
River Thame	154/A	1,2,3,4	4000	CL
Worminghall brook	154/3	1,2,3	1900	CL
Stoke Brook	168/2	2,3,4,5,6	6400	CL
~~River Ray~~	185	08	3200	CL
~~Oddington Brook*~~	185/5	01	1800	CLx2
~~Piddington Brook*~~	185/9	01	2500	CLx2
~~Murcott Dyke*~~	193	01	3000	CLx2
~~Wendlebury Brook*~~	189/2	01	500	CLx2
~~Ludgershall Brook*~~	185/12	01	500	CLx2
~~Piddington Brook*~~	185/9	01	600	CLx2
~~Boarstall Lane Ditch*~~	193/8	01	600	CLx2
~~Whitecross Green Ditch*~~	193/7	01	400	CLx2
~~Round Lane Ditch*~~	193/3	01	650	CLx2
~~Langford Brook*~~	189	04	400	CLx2
~~Panshill Brook*~~	194/1	02	400	CLx2
~~Field Road Ditches*~~	193/5	01	800	CLx2
~~Marlake Ditch*~~	193/6	01	650	CLx2
Chalgrove Brook*	159	05	1200	CLx2
Chalgrove Mill Stream*	159/b	01	1500	CLx2
Stadhampton Loop*	159/a	01	200	CLx2
Baldon Brook*	158	02	200	CLx2
Gainsbridge Brook*	160/a	02	200	CLx2
Towersey Brook*	164/1	01	550	CLx2
The Lyde*	164/13	01	500	CLx2
Scotsgrove Brook*	163	15	200	CLx2
Standals Brook*	163/10	01	200	CLx2
Cuttle Brook*	162	02	1200	CLx2
Wilstone Brook*	155	05	500	CLx2
Stoke Brook*	168/2	2,3	1500	CLx2
Bear Brook*	168	1–8,11	7600	CLx2
Long Marston Brook*	157	2,3	1000	CLx2
Southcourt Brook*	168/8	02	1500	CLx2
Wendover Brook*	168/12	02	1700	CLx2
Bedgrove Brook*	168/10	01	1750	CLx2
West End Ditch*	168/11	01	350	CLx2
Astrope Brook*	155/4	01	900	CLx2
Haseley Brook	160	4,5,6	7000	CL
Latchford Brook	160/1	01	2400	CL
Chalgrove Brook	159	6,7	2800	CL
Scotsgrove Brook	163	10,11.12	1700	CL
" "	"	13,14,15	4000	CL
Cuttle Brook	162	3,4,5,6,7	5500	CL
Halton Brook	168/13	01	2000	CL
Haydon Ditch	168/1	01	540	CL
River Thame	154/B	8,9,10	3300	CL
Fleet Marston Brook	166	3,4	3000	CL
Wendover Brook	168/12	1,2	4000	CL
~~River Wye*~~	89	1–5	8800	CLx2
~~Wycombe Marsh Brook*~~	89/c	01	1650	CLx2

River Thame	154/B	11,12,13	3700	RI
" "	"	14	1000	RI
Wilstone Brook	155	3,4	1500	RI
~~River Bay~~	185	4,5,6,7,	5000	RI
Chalgrove Mill Stream	159/b	1	500	RI
Long Marston Brook	157	2,3	400	RI
Stadhampton Loop	159/a	01	100	RI
River Thame	154/A	07	300	DR
Horsendon Stream	164/9	03+04	200	CLx2
~~Piddington Brook~~	185/9	01	2900	CL

CATCHMENT 19			SOS band	last flooded (no. of properties.	Maintenance History					Maintenance Programme				
Town/Village	River Name	River (Reach) Code			90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00
Walton/Aylesbury	Bear Brook	168 (6)	A		CR	CR				CL	CL	CL	CL	CL
Bedgrove/Aylesbury	Bedgrove Brook	168/10 (1)	C		CR	CR	OB	CL		CL	CL	CL	CL	CL
Bedgrove/Aylesbury	West End Ditch	168/11 (1)	E		CR/DR	CR								CL
Weston Turville	Wendover Brook	168/12 (2)	D		CR			CL		CL	CL	CL	CL	CL
Aston Clinton	Bear Brook	168 (11)	E		CR		RI/ FP	MW						CL
Wilstone	Wilstone Brook	155 (5)	E											CL
Long Marston		155/5								CL	CL	CL	CL	CL

Fig. 11

Southcourt/Aylesbury	Southcourt Brook	168/8 (1)	C		CR	DR	DR/CR		~~CL~~	CL	CL	CL	CL	CL
Southcourt/Aylesbury	Southcourt Brook	168/8 (2)	C		CR	CR		CL	~~CL~~	CL	CL	CL	CL	CL
Quarrendon/Aylesbury	Bear Brook	168 (3)	A			CR	DR/CR	GM/RI/ DR		CL	CL	CL	CL	CL
Southcourt/Aylesbury	Bear Brook	168 (4)	A			CR		CL		CL	CL	CL	CL	CL
Walton/Aylesbury	Bear Brook	168 (5)	A		DA/DE	CR	MI			CL	CL	CL	CL	CL

FIG 11

CATCHMENT 19			sos band	last flooded (no. of properties.	Maintenance History					Maintenance Programme				
Town/Village	River Name	River (Reach) Code			90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00
Thame	Cuttle Brook	162 (1)	E				CR/DR	RI						CL/DR
Thame	Cuttle Brook	162 (2)	E				DR/DE						CL	
Moreton	Cuttle Brook	162 (3)	E										CL	
Henton	Kingsley Cuttle Brook	164 (7)	E									CL		
Towersey	Towersey Brook	164/1 (1)	D					CL	CL	CL	CL	CL	CL	CL
The Ford	Coldharbour Ditch	164/12 (1)	E					CR						CL
Pitch Green	Coldharbour Ditch	164/12 (1)	E					CR						CL
Marsh	Scotsgrove Brook	163 (12)	D			DA/De/ CR					DR CL			
Little Kimble ✓	Scotsgrove Brook	163 (15)	E								DR CL			
Meadle	Meadles Brook	163/3 (3)	E									DR CL		
Bishopstone ✓	Standals Ditch	163/10 (1)	D			CR						CL		
North Lee	Terrick Brook	163/11 (1)	E			DR		CL				CL		
Aylesbury/Quarrendon	Haydon Ditch	168/1 (1)	A? C)				OB/EM						CL	
Stoke Mandeville	Stoke Brook	168/2 (5)	E		DA		CR			CL	CL	CL	CL	CL
Lower Hartwell	Lower Hartwell Ditch	168/4 (1)	E					DR	RI/ GM					CL

FIG 11

CATCHMENT 19			SOS band	last flooded (no. of properties.	Maintenance History					Maintenance Programme				
Town/Village	River Name	River (Reach) Code			90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00
Dorchester	R. Thame	154A (1)	D		CR		CR	DR/FP	TW	TW	DR CL			
Overy	R. Thame	154A (2)	D				CR	RI			DR CL			
Drayton St. Leonard	R. Thame	154A (6)	E				CR/TW	CR/DR		I	DR CL.			
Newington	R. Thame	154A (7)	E				TW	CL/DR		CL DR.				
Chiselhampton	R. Thame	154A (8)	E				TW		OB	CL.				
Waterstock	R. Thame	154A (17)	E		CR				CL/TW					DR CL
Waterperry	R. Thame	154A (17)	E		CR				[illegible]	RI				DR CL.
Shabbington	R. Thame	154A (23)	E			DR/DE	DR		[illegible]	DR RI				DR.
Thame	R. Thame	154A (24)	E				DA/DE /DR		[illegible]	DR CL.				
Long Crendon/Stockgrove Wks	R. Thame	154A (27)	D				DR/RI/ TW	RI						DR
Chearsley	R. Thame	154B (1)	D					RI/DR/ CL		RI				
Lower Winchendon	R. Thame	154B (3)	D					EN	RI					CL
Aylesbury	R. Thame	154B (11)	D				DR/DE	FP		DR CL.				
Stadhampton	Chalgrove Brook	159 (1)	D					CL		CL	[illegible]	[illegible]	[illegible]	[illegible]

F14.11

Brookhampton	Chalgrove Brook	159 (2)	D					Cl/ TW	[redacted]	CL DR				CL
Chalgrove	Chalgrove Brook	159 (5)	C		CR	CR	CR	CR/DR	CL	CL	CL	CL	CL	CL
Latchford	Latchford Brook	160/1 (1)	D		DE									CL
Worminghall	Worminghall Brook	154/3 (2)	E			CR		CR						CL
Long Credon	Credon Stream	154/3 (2)	E								CL DR.			
Dorton	Dorton Brook	165/2 (1)	E			DR			[redacted]	RJ				CL

Fig 1

2.11 FISHERIES

The NRA has a general duty to maintain, improve and develop fisheries under its jurisdiction. It has powers to regulate and protect fisheries as defined in the Salmon and Freshwater fisheries Act, 1975 and the Salmon Act, 1986. It also has further duties to control fish disease and monitor fish stocks.

The EC Directive 78/659/EEC instructs member states to designate river and canal reaches capable of supporting salmonoid or cyprinid fisheries. These watercourses are required to comply with stipulated water quality parameters in order to protect fish life. There are two reaches designated under the EC Fish Directive in this catchment described in the table below.

EC Fish Directives

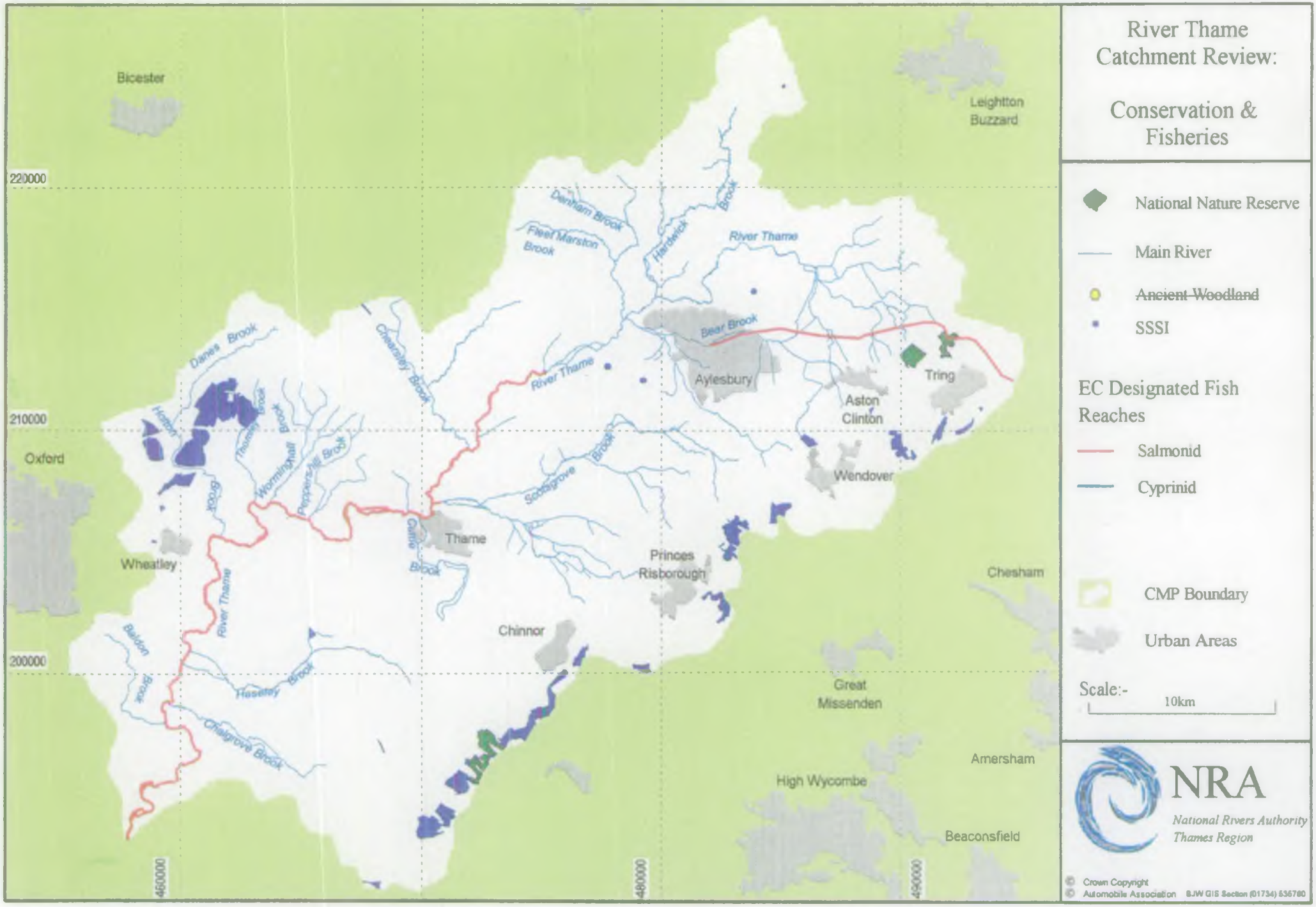
Watercourse	Reach	Length (km)	Designation
GUC Aylesbury arm	GUC at source to GUC at California Brook SP91801436 to SP 82241350.	9.9	cyprinid
Thame	Thame at Cuddington to Thames SP73801190 to SU7809321.	46.0	cyprinid

All designated areas of the Thame is coarse fishery with a Target Biomass of $20gm^{-2}$. The River Thame supports a good to excellent coarse fishery form approximately Nether Winchendon downstream to the confluence with the Thames (SP 732118). No game fishery exists. Scotsgrove Brook system has relatively unknown fish populations. Still water fisheries - Tring reservoirs (3 or 4 pits): Hotton Reservoirs (SSSI); Milton pools (commercial fishery); Various estate lakes (smaller waters) also the Grand Union Canal (Aylesbury Arm) is and important fishery.

The fisheries features within the Thame catchment are shown on the map at Fig. 11.

There are several Angling clubs within the catchment which have been listed in the table below:-

Leighton Buzzard Angling Club
St Nicholas Angling Club
Thame Fisheries Consultative
Aylesbury Federation of Anglers
Aylesbury and District IWA
Dorchester Angling Association
Dorchester Angling Club
Tring Anglers
Thame Utility Fish Preservation Consultative


River Thame Catchment Review:
Conservation & Fisheries
National Nature Reserve
Main River
Ancient Woodland
SSSI
EC Designated Fish Reaches
Salmonid
Cyprinid
CMP Boundary
Urban Areas
Scale:-
10km
NRA
National Rivers Authority
Thames Region
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Thame
Aylesbury
Tring
Aston Clinton
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Chinnor
Chesham
Great Missenden
Amersham
High Wycombe
Beaconsfield
220000
210000
200000
460000
480000
490000
River Thame
Bear Brook
Danes Brook
Cheesterley Brook
Fleet Marston Brook
Dunham Brook
Hardwick Brook
Horton Brook
Thame Brook
Worminghall Brook
Peppershill Brook
Scotsgrove Brook
Clattercote Brook
Baldon Brook
Haseley Brook
Chalgrove Brook

FIG. 12

2.12 CONSERVATION

The NRA has a duty under the Water Resources Act, 1991 and Land Drainage Act, 1991 to further and promote the conservation of the water environment. In order to do this it has developed a strategy which is aimed at conserving and enhancing wildlife, landscape and archaeological features associated with inland waters (and coastal waters). This strategy is encapsulated in the objectives to assess and monitor conservation issues; ensuring that the NRA's regulatory, operational and advisory activities take full account of conservation issues; and promoting conservation to enhance the environment.

These objectives mean that conservation is linked with all the activities carried out by the NRA, and its importance in the Thame catchment area is no exception. There is extensive conservation input within the NRA to all operational and regulatory functions including advising on planning issues, flood defence projects, habitat improvement schemes, fishery issues and recreational projects.

Consultation with external organisations such as English Nature, RSPB, National Trust as well as local groups is also a normal procedure. One particular area of consultation involves the establishment of Sites of Special Scientific Interest (SSSIs).

In the Thame catchment there are 34 SSSIs. Out of these 9 are also County Trust Nature Reserves and 8 are archaeological sites.

The Catchment includes part of the Chiltern Beechwoods proposed Special Area of Conservation (SAC), designated under the Habitats Directive (equivalent to SPA), which includes five existing SSSIs including Aston Rowant Woods, Ellesborough and Kimble Warrens and Naphill Common.

There is a Local Nature Reserve (LNR) on the Cuttle Brook at Thame, designated in 1994.

This catchment has a considerable number of Countryside Stewardship agreements. **<examples>?**

Recent NRA creation of wetland at Bear Brook Flood Storage Area and accompanying information to be funded by NRA and Aylesbury Vale Countryside Management Project. This project undertakes various management activities including pollarding.

Pollarded willows and black poplars are two of the characteristic features of the Thame Valley. Both species support a wide variety of wildlife including hundreds of different insects, hole-nesting birds and animals and also many wildflowers will grow at the top of the pollard. This diversity of wildlife depends on the continued management of these trees. The Thame catchment is a key area for the nationally rare native Black Poplar. The NRA is helping to promote expansion of their population and manage the existing population by pollarding.

The catchment contains a considerable number of ancient and semi-ancient beechwood in the Chilterns. The catchment also includes other important woodland sites and chalk grassland SSSIs. The Tring reservoirs have high regional ornithological importance.

Features of conservation interest are shown on the map at fig. 11.

There are a number of interest groups involved in Conservation and wildlife some of which are listed in the table below:-

Berks, Bucks and Oxon Naturalist Trust (BBONT)
Aylesbury Countryside Management Project (District Council funded)
Bucks Nature Conservation Forum (includes whole range of organisations)
Oxon Nature Conservation Forum (includes whole range of organisations)
English Nature (Thames and Chiltern team)
RSPB (central England office)

2.13 LANDSCAPE

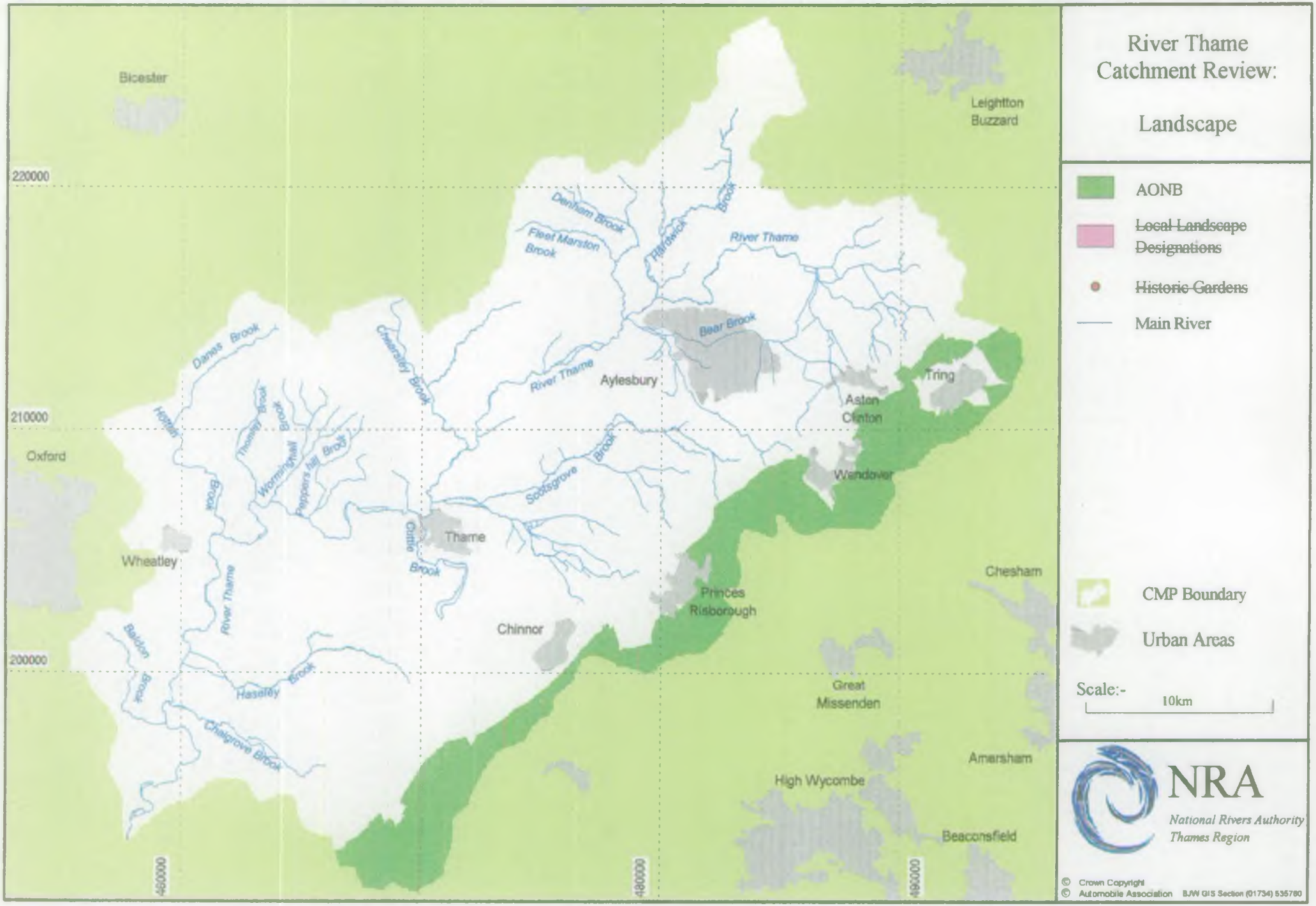
The NRA's principal aim in relation to landscape is to conserve and enhance the natural beauty and amenity of inland and coastal waters and associated lands. In particular, its conservation strategy seeks through appropriate management, to conserve existing landscape features, to restore landscape character where this has been eroded, and to create new landscapes through enhancement.

The majority of the Thame catchment is characterised by flat pastoral landscape with low limestone hills. The Chilterns escarpment skirts the southern edge of the catchment and is covered by the Chilterns Area of Outstanding Natural Beauty designation which is shown on the map at fig. 12.

There are large tracts of land in the catchment which are covered by Area of Attractive landscape designation including:- the Thame valley downstream of Aylesbury; the Brill-Winchendon hills; the Quainton-wing hills; Halton-Wendover area. An extensive area within South Oxfordshire District's jurisdiction is covered by the Area of Great Landscape Value (AGLV) designation and there is a proposal to extent this to include the area between the Thame valley and the Chilterns escapement.

The Grand Union Canal is an important feature to the east of Aylesbury in terms of landscape & heritage value, its recreational value and its significance as a wildlife corridor.

There is a lack of baseline data and evaluation of the type and quality of river landscapes ie landscape assessment required. Poor environmental quality of many of the watercourse within Aylesbury and the need to fully survey them in order to conserve remaining high quality watercourses and to identify and bid for resources to enhance and bid for resources and to identify and bid for resources to enhance them where most appropriate.


River Thame
Catchment Review:
Landscape
AONB
Local Landscape Designations
Historic Gardens
Main River
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Princes Risborough
Chesham
Great Missenden
Amersham
High Wycombe
Beaconsfield
Denham Brook
Fleet Marston Brook
Rifferwick Brook
River Thame
Bear Brook
Dawes Brook
Horton Brook
Thomley Brook
Worminghall Brook
Peppers Hill Brook
Cheerasley Brook
Scotsgrove Brook
Cuttle Brook
Baldon Brook
Haseley Brook
Chalgrove Brook
220000
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FIG. 3

2.14 RECREATION

The NRA's principal aims in relation to recreation is to:

- develop the amenity and recreational potential of inland (and coastal) waters and associated land.

Its specific objectives are:

- to maintain, develop and improve recreational use of NRA sites;
- to take account of recreation in proposals relating to any NRA function;
- to promote the use of water and associated land for recreational purposes.

The main recreation value of the catchment is the attraction of its pastoral landscape and diversity of wildlife interest which is suitable for passive recreational activities such as walking, rambling, birdwatching and other country pursuits. The Thame also has numerous country houses and parks and historic settlements which are an added attraction to visitors. There is generally good access to the River Thame with an extensive system of rights of way and two fords and one stepping stone crossing.

Fishing represents a direct recreation use of the river and there are many pathways which give river access for the angler. There are also several fishing clubs which have rights on the Thame river banks.

The countryside agencies responsible for the catchment are highly motivated to promoting walking routes in promoting the Thame valley's assets. Current objectives are waymarking all routes by the year 2000 and to progress the Parish Paths partnerships.

There are a number of long distance footpaths which run through the catchment including the Ridgeway, Oxfordshire Way and North Buckinghamshire Way. In addition there is a Thame linear Path which is a 15 mile walk which links the North Bucks Way with the Oxfordshire Way. The NRA has contributed to a leaflet on this walk, which has been produce by Aylesbury Vale District Council as part of the Aylesbury Vale Countryside Project.

2.15 NAVIGATION

The NRA's principal aim in relation to navigation is to improve and maintain inland waters and their facilities for use by the public.

The Thame is not a public navigation although it is used for navigation, probably under private agreements. The NRA has no navigation jurisdiction although the Thame enters the Thames just downstream of Days Lock, near Dorchester. There are no other public navigations in the Review area.

In terms of navigation the Thame is used for cruising for a limited stretch between the Thames and Dorchester. Several small cruisers are moored on the banks. Canoes travel a lot further upstream, although it is not clear of fallen trees etc. There is no information on navigation on the other rivers in catchment.

The Thame is used for fishing, private clubs rent fishing rights. No public access for walking.

2.16 LAND USE PLANNING

While the NRA is well placed to influence some of the factors affecting the water environment, it has no direct control over the mechanisms which determine land use activities. This function is primarily the responsibility of Local Planning Authorities through the implementation of Town and Country Planning legislation. The NRA is nevertheless involved in the planning system as a statutory consultee, receiving both development plans and planning applications for comment.

The study area covers part of the counties of Oxfordshire, Buckinghamshire and Hertfordshire. The relevant local planning authorities and their most recently produced development plans are listed below:

Buckinghamshire

Buckinghamshire County Council - The New Buckinghamshire County Structure Plan 1991-2011 (Deposit draft April 1994)

Aylesbury Vale District Council - Rural Areas Local Plan (Adopted June 1995); Aylesbury Town Local Plan (Adopted 1991)

Chiltern District Council - Chiltern District Local Plan (Deposit draft May 1995)

Wycombe District Council - Wycombe District Local Plan (Adopted June 1995)

Oxfordshire

Oxfordshire County Council - Oxfordshire Structure Plan 2001, (Consultation draft August 1995);

Cherwell District Council - Cherwell Local Plan, deposit draft, November 1992;

South Oxfordshire District Council - South Oxfordshire Local Plan, December 1993

Hertfordshire

Hertfordshire Structure Plan - Hertfordshire Structure Plan

Dacorum District Council - Dacorum District Local Plan

Other studies

The local authorities within the Thame catchment have also produced other documents which are of relevance to the catchment including: Buckinghamshire Landscape study; Buckinghamshire Nature Conservation Strategy; Oxfordshire Nature Conservation Strategy; Oxfordshire Environmental Strategy; Chilterns AONB Management Plan.

Future expansion of Aylesbury

The Buckinghamshire Structure Plan identifies Aylesbury as a major strategic growth settlement, with housing development and employment growth planned for the town in the period 1991-2011.

The flood alleviation scheme in the town, which is nearing completion, was designed to deal with flooding taking account of the level of development set out in Aylesbury Town Local Plan. However this excluded the additional housing sites now proposed by the Structure Plan. The additional housing is therefore likely to worsen the flooding situation unless appropriate mitigation methods are agreed.

The NRA TR has published a strategic planning initiative called "Thames 21 - A Planning Perspective and a Sustainable Strategy for the Thames Region", which provides a regional context for the preparation of CMP's by identifying strategic development issues including future development pressure points. Aylesbury has been identified as a pressure point (see map at fig 13).

Meetings between Aylesbury Vale District Council and the NRA on the expansion of Aylesbury, particularly proposals for housing and link roads, have recently taken place but specific sites have yet to be chosen.

Source control measures to attenuate the increases in surface water run-off must be incorporated into any new development to avoid further flooding. Development in the floodplain should be resisted to retain the capacity, extent and natural flow routes of the floodplain.

In addition the Grand Union Canal, the Bedgrove, Bearbrook and the Southcourt Brooks together offer opportunities for integrated open space within Aylesbury town centre, and they are of important amenity value.

Specific Development Sites

Approximately 250 planning applications are received by the NRA from LPAs within the catchment area. The following is a list of some of the current development proposals which have implications for the water environment:-

- Oxford Road Mill, Aylesbury site to be redeveloped along with Shell premises next door. Improvements to river corridor and redesign of weir to Aylesbury FAS are needed here.

- Walton Mill, Aylesbury - the mill site is to be redeveloped for housing. A large corridor to be provided to allow for developer on opposite bank (BWB).

- Coldharbour farm - work is about to start on this large development which incorporates the restoration of river channels through the site.

- Aston Clinton By-pass - details agreed but construction may well be shelved. Wendover Bypass is still under consideration.

- Housing sites are being considered at Haddenham.

- Magnolia Park Golf Course on tributary of Danes Brook

- possibility of a M40 service station near Tetsworth. The decision on this is awaiting the decision of the Public Inquiry.

- Redevelopment of BETEC site in Aylesbury town.

Derelict Sites

There are a number of sites in the catchment which have become derelict or disused which are likely to be redeveloped for alternative uses, these include:- RAF base at Halton near Wendover, St Johns Hospital at Stone and the Pitstone Cement works.

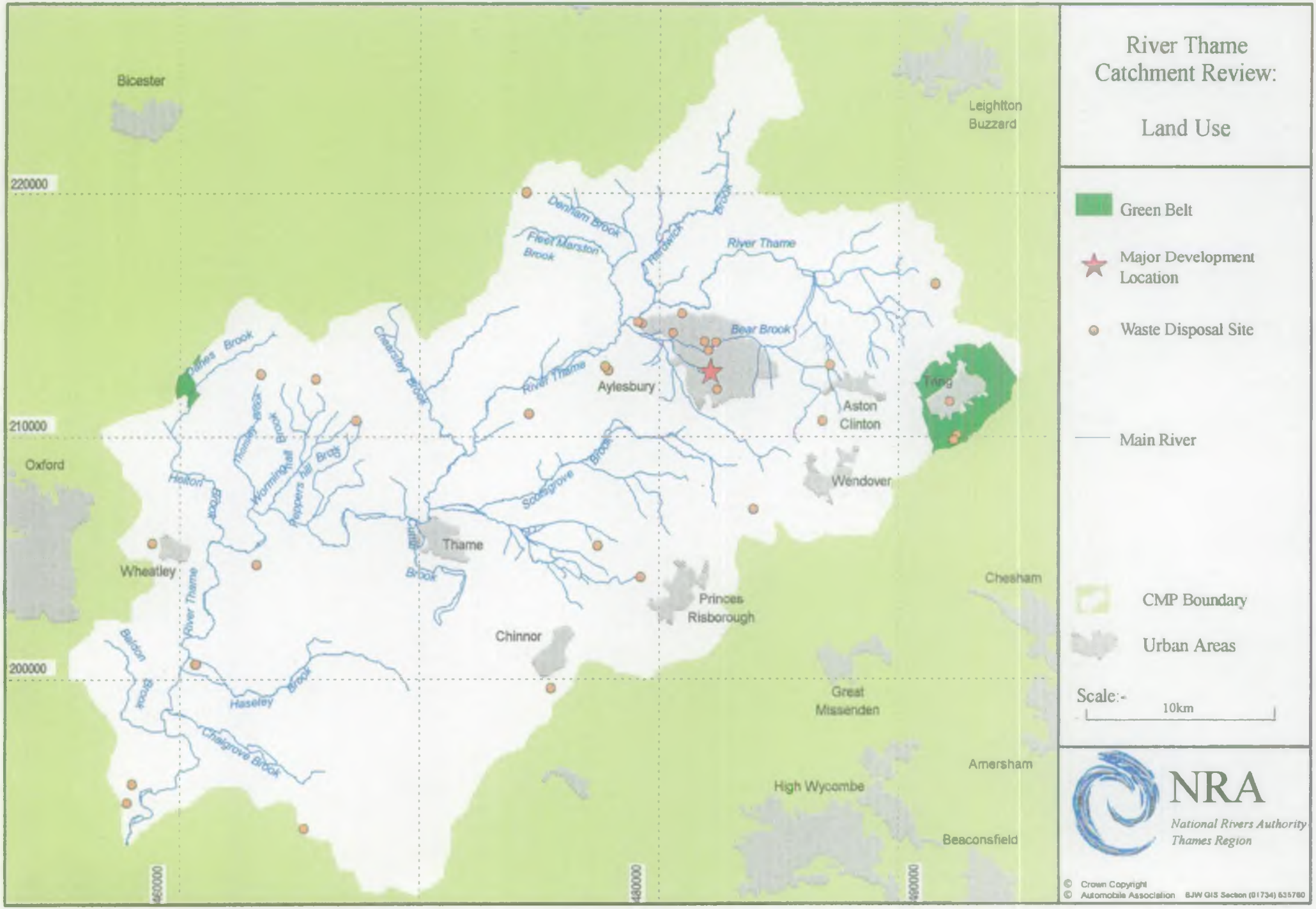
Minerals

The relevant minerals policies for the study area are contained in the following plans: Oxfordshire Minerals and Waste Plan (Deposit Draft 1993); The Buckinghamshire Minerals Plan (adopted 1995); and the Hertfordshire Minerals Plan. There are no minerals sites of any significance in the catchment area.

Waste

The waste sites are identified in the following plans:- Oxfordshire Minerals and Waste plan (Deposit Draft 1993); Buckinghamshire Waste Local Plan (Public consultation Draft 1995); and Hertfordshire Waste Local Plan. The main waste disposal sites are feature on the map at fig 13.

FIG. 14


River Thame Catchment Review:
Land Use
Green Belt
Major Development Location
Waste Disposal Site
Main River
CMP Boundary
Urban Areas
Scale:-
10km
NRA
National Rivers Authority
Thames Region
© Crown Copyright
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Bicester
Leighton Buzzard
Aylesbury
Tring
Aston Clinton
Wendover
Oxford
Wheatley
Thame
Chinnor
Princes Risborough
Chesham
Great Missenden
Amersham
High Wycombe
Beaconsfield
220000
210000
200000
480000
River Thame
Bear Brook
Denham Brook
Fleet Marston Brook
Hardwick Brook
Chearsley Brook
Scotsgrove Brook
Cuttle Brook
Thame Brook
Wormingall Brook
Peppers hill Brook
Helton Brook
Haseley Brook
Chalgrove Brook
Baldon Brook

3.0 CATCHMENT ISSUES

This section discusses the main issues relating to the water environment within the study area. It includes current problems and issues known by the NRA and those which are anticipated to become issues or problems in the future.

ISSUE 1 - CONTINUED EXPANSION OF AYLESBURY

i. Major development at Aylesbury, picking up problems of flooding, river corridor protection and enhancement, opportunity for linking areas of open space.

ii. Source Control to attenuate increases in surface water run-off, will be particularly important around Aylesbury.

ISSUE 2 - FLOOD DEFENCE

i. Future issues include proposed development within the flood plain - notably the Coldharbour Farm proposal which has had much input from the NRA and Operations. Other developments are hoped to follow this 'model'.

ii. Chalgrove is a major problem spot. Work to reduce local flooding and restore channel capacity through mill is under consideration.

ISSUE 3 - GRAND UNION CANAL

i. West Area Operations are actively promoting jointly funded studies to detail and record the flooding problems; it is hoped to capitalise on the cooperation and come up with a joint British Waterways/NRA strategy for Water Level Management in the Upper Thame. This would involve co-funding capital works.

ISSUE 4 - CRAYFISH PROTECTION

i. The native crayfish *(Austropotamobius pallipes)* and signal crayfish *(Pacifaxtus leinusculus)* are both found in the Thame catchment. Routine biological samples provide a useful record of their distribution for conservation purposes.

It is thought that the presence of signal crayfish in the lower catchment may restrict the downstream range of the native species. An up to date and more detailed understanding of the distribution of both species is required. In addition, monitoring to identify any impact of the signal crayfish on the native population should be conducted.

The abundance of Signal crayfish throughout catchment has caused complaints from anglers.

ISSUE 5 - CONSERVATION OF HIGH BIOLOGICAL DIVERSITY

i. Sites on the lower reaches of the River Thame achieve some of the highest BMWP scores in the region, consistently scoring above 150. In particular, the site at Dorchester Bridge is the best regional site, usually scoring over 200 and supporting rare Gomphid and Libellidlid Dragon fly larvae. These diverse macroinvertebrate communities reflect good water quality and river habitat.

It is important to maintain high water quality and protect form riverside development, adjacent to the River Thame.

ISSUE 6 - POOR WATER QUALITY IN SOME OF THE SMALLER TRIBUTARIES

i. There are 16 small watercourses within the Thame catchment which achieve BMWP scores which are consistently below 50. These are mainly small ditches and all receive discharges form small or private STW's, but poor habitat is also likely to be a cause of restricted invertebrate communities.

ISSUE 7 - EUTROPHICATION IN THE THAME CATCHMENT

i. Under the EC Urban Waste Treatment Directive (UWWTD), waters identified as eutrophic (nutrient enriched), or at risk of soon becoming, and which receive a qualifying STW discharge (Population Equivalent > 10,000) can be designated as Sensitive Areas. Aylesbury STW is the main qualifying discharge in the catchment and eutrophication in the River Thame is being assessed by macrophyte (plant) surveys above and below the discharge.

ii. Results show an increase in total cover and a decrease in species diversity below the discharge at Eythrop Lake. There is also a change in dominant taxon from Reed Sweet Grass, upstream at Stone Bridge, to Yellow Water Lilies which are more tolerant of nutrient enrichment.

ISSUE 8 - CONSENT CONDITIONS FOR AYLESBURY STW

i. Aylesbury STW had been identified as requiring investment under the Asset Management Plan Process (AMP 2). The biological scores show that there is a decline in biological quality below the STW discharge.

ii. Fish mortality downstream at Ethyrop. (Thame becomes a broadwater here therefore oxygen sags in summer due to sewage discharge upstream).

iii. Designation Aylesbury STW under AMP2 will require additional biological surveys to be carried out, to gain more information and identify potential for improvement.

ISSUE 9 - SURVEY WORK

i. Lack of baseline data and evaluation of the type and quality of river landscapes ie landscape assessment required.

ii. Strategic River Corridor Surveys due 1997 or 1998 subject to availability of funds.

ISSUE 10 - IMPROVEMENT OF WATERCOURSES IN AYLESBURY

i. Poor environmental quality of many of the watercourses within Aylesbury and the need to fully survey them in order to conserve the remaining high quality watercourses and to identify and bid for resources to enhance them where most appropriate.

ii. Sections of the California and Bear Brooks have been culverted in Aylesbury. There are also habitat problems and water quality issues. (General urbanisation affects on these streams).

iii. There has been a loss of integrity of river corridor through Aylesbury which needs to be restored.

ISSUE 11 - LACK OF WETLAND HABITAT

i. There is a lack of wetland habitats in the catchment due to past river improvements. Opportunities for wetland restoration should therefore be sought in collaboration with landowners and other bodies (eg Countryside Stewardship, Aylesbury Countryside Management Project).

ISSUE 12 - NEED FOR HABITAT ENHANCEMENTS

i. Habitat enhancement required to channel of the River Thame to compensate for past land drainage improvement works and agricultural change at numerous locations within the catchment.

ii. Much of the immediate river corridor is lacking in bankside cover, particularly in the upper reaches of the catchment. Opportunities for appropriate tree and shrub planting should be sought.

iii. There are few channel features upstream of Gythorpe Park and this problems should be addressed.

iv. Management and enhancement at Cuttle Brook Local Nature Reserve.

ISSUE 13 - BLACK POPLARS

i Seek to bring existing Black Poplars into conservation management by pollarding, collaboration with Aylesbury Countryside Management Project.

4.0 CATCHMENT ACTIONS

This section sets out a summary of NRA activity within the Thame catchment. Many of the actions have been initiated in response to the issues outlined in the previous sections, these have been listed under "issue related actions", following the numbering from the previous section. Non-issue related actions have also been included and routine activities.

The actions have been divided up, as far as possible, into recent NRA activity (post 1989), a summary of current NRA activity (1993/94) and a summary of planned NRA activity (1994/95 and beyond).

ISSUE RELATED ACTIONS

CONTINUED EXPANSION OF AYLESBURY (ISSUE 1)

Current Activities 1994/5

Post scheme appraisal/flood maps etc for Aylesbury FAS to tie into new development proposals.

Minor improvement works eg. trash screens to protect culverts at High Street, Aylesbury and other urban sites.

Chalgrove Flood Alleviation works.

West Area Operational Levels Information - a small project to install remote monitoring or re-present data from existing remote monitoring stations so as to assist in operational control land patrolling of rivers during high flows; and to assist in passing objective data to Regional Flood Warning.

Planned Activity 1995/6 and beyond

Section 105 surveys to be carried out particularly upstream of Fleet Marston Brook /Thame confluence.

FLOOD DEFENCE (ISSUE 2)

Planned Activity 1995/6 and beyond

BW/NRA study for 1996/7 - joint scheme to rebuild a small river control structure on the Wilstone Brook.

<GRAND UNION CANAL (ISSUE 3)???? >

CRAYFISH PROTECTION (ISSUE 4)

A contract for an R&D project entitled "Impact of the Cray fishery on the River Thame" has just been drawn up. Signal crayfish are commercially fished on the River Thame between Cuddesdon Mill and Stadhampton, with half a tonne removed each year. The project will assess the impact of this fishery on the flora and fauna of the River Thame, including potential effects on the nature of the cray fish population.

<CONSERVATION OR HIGH BIOLOGICAL DIVERSITY (ISSUE 5)????? >

<WATER QUALITY (ISSUE 5)???? >

<EUTROPHICATION IN THE THAME CATCHMENT (ISSUE 7)????? >

<CONSENT CONDITIONS FOR AYLESBURY STW (ISSUE 8)?????? >

SURVEY WORK (ISSUE 9)

Planned Activity

Strategic and detailed landscape assessment

IMPROVEMENT OF WATERCOURSES IN AYLESBURY (ISSUE 10)

Rejuvenation of an urban watercourse - Scotsgrove Brook enhancement in Aylesbury. Housing development in Watermead Aylesbury - new channel developed with instream habitat enhancements.

WETLAND CREATION (ISSUE 11)

Enhancements (Wetland Creation) incorporated into Bear Brook Flood storage Area (Aylesbury)

GENERAL HABITAT ENHANCEMENTS (ISSUE 12)

Recent activities

Channel enhancements including two stage channel, narrowing and gravel riffles on the River Thame at Chearsley and Nether Winchendon which is as fisheries led habitat enhancement, has been carried out on the River Thame at Nether Winchendon. This requires post-survey monitoring by the Biology section to determine the impact on the macroinvertebrate and plant communities.

Large scale willow pollarding.

Planned Activity 1995/96

Pond Restoration at Notley farm

Enhancements at Cuttle Brook

Tree planting - Shabbington, Aylesbury

To realign Broadwater at Eythrope to an off-line lake. This will require work on run-off channel which was originally the actual channel.

BLACK POPLARS (ISSUE 13)

Black Poplar pollarding is taking place at various sites along the river Thame and its tributaries and will continue through 1996 and beyond.

NON-ISSUE RELATED ACTIONS

Flooding

MOU/circular 30/92 - Flood Mapping programme re catchment area, groundwater source protection zone and vulnerability mapping. Information availability for catchment area.

Water Resources
Possible future gauging station on Bear Brook at Aylesbury

ROUTINE ACTIVITIES

FLOOD DEFENCE

Routine Maintenance Regime

Regular maintenance is essential if the full hydraulic capacity of the river system is to be preserved.
Such maintenance works include vegetation control, obstruction and blockage removal and dredging. Maintenance of the integrity of the banks themselves is the responsibility of the riparian owner. A regime of regular maintenance can contribute significantly to reducing the risk of flooding. At times of heavy rainfall the NRA's operational priorities are to check river control structures and clear debris and identified obstructions where possible.

POLLUTION

Pollution recent Activities (post sept 1990)

Pollution prevention programmes:-
Farms: sub-catchment of the upper reaches of the River Thame from source to Tring Bourne.

Industrial: Rabans Lane and Broadmeads Industrial areas, Aylesbury.

Current Activities (1994/5):

Farms: sub-catchment of the upper reaches of the River Thame draining directly to the River Thame from Rousham Brook to Fleet Marston Brook including Bucks County Council farms and small holdings within this area.

Industrial: Bicester Road and Oxford Industrial areas, Aylesbury

Planned Activity 1995/6 and beyond

Farms: sub-catchments of the upper reaches of the River Thame in the Tring/Halton/ Wendover area to complete the 'umbrella' above Aylesbury.

Industrial: Stocklake Industrial Area, Aylesbury. General Industrial areas of Tring and Wendover.

Sewerage:

Little Haseley: pollution form septic tanks is being investigated by a closed circuit TV specialist company who have been employed to film a section of culverted watercourse.

Lower & Nether Winchendon scheme completed.

Marsworth scheme completed.

Sewerage Disposal: Diversion of flows from Weedon STW to Aylesbury completed. Improvements at Thame and Wheatley STW carried out.

Agriculture: The impact of the Control of Pollution (Silage, Slurry and Fuel Oil) Regulations 1991, arising form the Water Act 1989, on pollution of watercourses by farm waste has been significant. The effects of the withdrawal of Grant Aid by MAFF in late 1994 are yet to be assessed.

CONCLUSIONS AND RECOMMENDATIONS

There are clearly a range of problems and issues within the Thame catchment area. Some of these issues only affect certain departments within the NRA whereas other issues are multifunctional. As our mission statement reinforces, it is the NRA's duty to *"protect and improve the water environment"*. In order to address these current catchment issues, it is important that all departments of the NRA work together as a team in order to eliminate these problems. This is by the use of firstly, making sure that the planned and routine activities are carried out, and secondly, highlighting any further actions that are required.

THAME CATCHMENT REVIEW TABLE OF RIVER QUALITY GQA AND RE

WATERCOURSE	REACH	LENGTH (KM)	UPNGR	DOWNNGR	CHEMCODE	CHEMNGR	CHEMNAME	RE 91-93 OPT	RE 92-94 OPT	GQA 1988-1990	GQA 1991-1993	GQA 1992-1994
BEAR BROOK	Wellonhead Stream - Thame	12.3	SP8794 1162	SP7856 1481	PTAR 0003	SP786 148	BEAR BK US THAME	2	2	B	C	C
BENNETTS DITCH	Source - Thame	2.0	SP6833 0508	SP6708 0578	PTAR 0058	SP6745 0575	BENNETS DITCH AT A418 ROADBRIDGE	3	3	D	C	C
BLACK DITCH	Railway - Kingsey Cuttle Brook	1.9	SP7252 0494	SP7292 0662	PTAR 0109	SP729 062	BLACK DITCH AT A4129	4	4	E	D	D
CHALGROVE BROOK	Source - Thame	12.1	SU6781 9500	SU5938 9871	PTAR 0052	SU5942 9873	CHALGROVE BK, CHISELHAMPTON BR	2	2	B	B	B
CRENDON STREAM	Nr.Crendon STW - Thame	1.1	SP700 083	SP7051 0770	PTAR 0110	SP7056 0781	CRENDON STREAM ABOVE THAME	6	6	E	F	F
CRESLOW BROOK	Whitchurch STW - Hardwick Brook	1.6	SP817 208	SP8292 2105	PTAR 0114	SP828 211	CRESLOW BROOK ABOVE HARDWICK BROOK	2	1	B	B	B
DANES BROOK	Horton-C-Studley STW - Holton Brook	2.3	SP606 119	SP5960 1016	PTAR 0005	SP597 104	DANES BK US HOLTON BK	2	2	D	C	C
DENTON BROOK	Cuddesdon STW - Thame	1.1	SP597 022	SP6010 0137	PTAR 0100	SP6011 0138	DENTON BROOK AT CHIPPINGHURST MANOR, LITTLE MILTON	4	4	C	E	D
DENTON BROOK	Source - Cuddesdon STW	1.5	SP5892 0306	SP597 022	PTAR 0124	SP5930 0244	DENTON BROOK AT DENTON	5	4	C	F	D
DORTON BROOK	Brill - Chearsley Bk (Thame)	3.8	SP6668 1275	SP6902 1403	PTAR 0099	SP6848 1419	DORTON BROOK ABOVE CHEARSLEY BROOK, DORTON	3	3	E	D	C
FLEET MARSTON BROOK	Franks Ditch - Thame	7.7	SP7480 1859	SP7845 1454	PTAR 0007	SP784 155	FLEET MARSTON BK US THAME	3	3	E	D	C
GAINSBRIDGE BROOK	Little Milton STW - Thame	2.0	SP621 005	SP6038 0088	PTAR 0051	SP615 004	GAINSBRIDGE BK, LTL MILTON	2	2	C	C	B
GAINSBRIDGE BROOK	Haseley Wood - Little Milton STW	1.7	SP6344 0133	SP621 005	PTAR 0101	SP6210 0051	GAINSBRIDGE BROOK ABOVE LITTLE MILTON STW	2	2	B	B	B
GARSINGTON STREAM	Garsington STW - Baldon Brook	0.6	SP573 020	SP5689 0158	PTAR 0115	SP5720 0192	GARSINGTON STREAM AT B480, GARSINGTON	4	3	F	E	E
GUC (AYLESBURY ARM)	Source - California Brook	9.9	SP9180 1436	SP8224 1350	PTAR 0009	SP872 140	GUC, COLLEGE BR ASTON CLINTON	4	4	D	E	D
GUC (PITSTONE REACH)	Summit - GUC (Aylesbury Arm)	3.9	SP9448 1221	SP9180 1436	PTAR 0135	SP9199 1418	GUC (PITSTONE REACH) AT MARSWORTH	3	4	<D	D	D
GUC (WENDOVER ARM)	Source - GUC (Pitstone Reach)	2.0	SP9170 1288	SP9289 1386	PTAR 0008	SP924 132	GUC WENDOVER, TRING BR	1	1	C	B	B
HALTON BROOK	Halton - Bear Brook	2.4	SP8743 1062	SP8710 1278	PTAR 0010	SP871 123	HALTON BK, A41 US BEAR BK	2	1	B	B	B
HARDWICK BROOK	Source - Thame	16.1	SP8497 2485	SP7982 1546	PTAR 0047	SP8067 1878	HARDWICK BK, HARDWICK	2	2	D	B	B
HASELEY BROOK	Source - Warpsgrove Ditch	8.3	SP6860 0046	SU6393 9931	PTAR 0116	SU6410 9963	HASELEY BROOK ABOVE WARPSGROVE DITCH	3	2	C	C	B
HASELEY BROOK	Warpsgrove Ditch - Thame	5.9	SU6393 9931	SP6007 0039	PTAR 0013	SU613 999	HASELEY BK US THAME	2	2	C	B	B
HENTON STREAM	Chinnor STW - Kingsey Cuttle Brook	1.6	SP759 033	SP7588 0410	PTAR 0111	SP755 042	HENTON STREAM ABOVE KINGSEY CUTTLE BROOK	4	4	E	E	D
HOLTON BROOK	Source - Thame	7.8	SP5938 1046	SP6158 0565	PTAR 0014	SP618 062	HOLTON BK US THAME	3	3	C	D	C
HORSENDEN STREAM	Princes Risboro' STW - Kingsey Cuttle Bk	6.5	SP799 039	SP7540 0478	PTAR 0089	SP776 040	HORSENDEN STREAM AT THE FORD, BLEDLOW	2	2	D	B	B
HORSENDEN STREAM	Princes Risboro' - Princes Risboro' STW	0.4	SP8036 0390	SP799 039	PTAR 0118	SP8050 0359	HORSENDEN STREAM AT BROOKE ROAD, PRINCES RISBORO	2	2	B	B	B
KINGSEY CUTTLE BROOK	Source - Scotsgrove Brook	9.7	SP7682 0164	SP7184 0718	PTAR 0017	SP735 064	KINGSEY CUTTLE BK US SCOTSGROVE BROOK	3	3	C	C	C
LASHLAKE STREAM	Thame STW - Scotsgrove Brook	0.5	SP711 067	SP7092 0708	PTAR 0112	SP7118 0674	LASHLAKE STREAM ABOVE SCOTSGROVE BROOK	5	5	E	E	E
LATCHFORD BROOK	Tetsworth Common - Haseley Brook	5.3	SP6847 0250	SP6544 0074	PTAR 0102	SP653 013	LATCHFORD BROOK AT LATCHFORD	2	2	B	C	C
LEWKNOR BROOK	Lewknor STW - Chalgrove Brook	6.7	SU709 982	SU6622 9620	PTAR 0117	SU679 975	LEWKNOR BROOK AT ROADBRIDGE, NR PYRTON	3	3	C	D	D
MILTON DITCH	Great Milton STW - Thame	1.6	SP625 034	SP6162 0417	PTAR 0063	SP619 043	MILTON DITCH AT GREAT MILTON ROAD, WHEATLEY	2	2	C	C	C
MILTON DITCH	Great Milton - Great Milton STW	1.1	SP6284 0254	SP625 034	PTAR 0103	SP6250 0328	MILTON DITCH AT GREAT MILTON	2	2	B	C	C
PEPPERSHILL BROOK	Chilton - Shabbington Brook	6.6	SP6835 1124	SP6558 0670	PTAR 0043	SP659 073	PEPPERSHILL BROOK, ICKFIELD BRIDGE	4	4	D	E	D
PEPPERSHILL BROOK	Shabbington Brook - Thame	0.5	SP6558 0670	SP6533 0636	PTAR 0107	SP6532 0650	PEPPERSHILL BROOK ABOVE THAME	3	3	E	D	D
POLECAT END DITCH	Forest Hill - Holton Brook	0.9	SP5905 0810	SP5972 0858	PTAR 0121	SP5926 0830	POLECAT END DITCH AT POLECAT END LANE, FOREST HILL	5	5	C	E	E
ROWSHAM BROOK	Wingrave STW - Thame	2.4	SP864 187	SP8471 1759	PTAR 0119	SP8470 1762	ROWSHAM BROOK ABOVE THAME	3	3	E	C	D
SCOTSGROVE BROOK	Haddenham STW - Lashlake Stream	4.5	SP7450 0750	SP7092 0708	PTAR 0034	SP719 071	SCOTSGROVE BK, SCOTSGROVE MILL	3	2	D	C	B
SCOTSGROVE BROOK	Little Kimble - Haddenham STW	14.5	SP8244 0710	SP7450 0750	PTAR 0032	SP752 077	SCOTSGROVE BK US HADDENHAM STW	3	2	D	C	C
SCOTSGROVE BROOK	Lashlake Stream - Thame	1.0	SP7092 0708	SP7039 0652	PTAR 0033	SP709 071	SCOTSGROVE BK US THAME	3	3	D	D	D
SHABBINGTON BROOK	Westfield - Shabbington STW	3.3	SP6761 0903	SP662 073	PTAR 0044	SP677 090	SHABBINGTON BK, WESTFIELD	3	2	E	C	C
SHABBINGTON BROOK	Shabbington STW - Peppershill Brook	1.1	SP662 073	SP6558 0670	PTAR 0045	SP661 071	SHABBINGTON BK, SHABBINGTON BR	4	3	C	E	D
STANTON STREAM	Stanton STW - Holton Brook	1.2	SP586 097	SP5967 1006	PTAR 0108	SP591 096	STANTON STREAM ABOVE HOLTON BROOK	2	2	C	C	C
STOCKLAKE BROOK	Source - Bear Brook	1.8	SP8382 1502	SP8277 1396	PTAR 0120	SP8282 1400	STOCKLAKE BROOK ABOVE BEAR BROOK	3	3	E	D	C
STOKE BROOK	Source - Bear Brook	6.8	SP8485 0963	SP7927 1416	PTAR 0036	SP806 129	STOKE BROOK ABOVE BEAR BROOK	2	1	B	B	B
THAME	Mains Bridge, Winchendon - Scotsgrove Bk	10.5	SP7491 1229	SP7039 0652	PTAR 0021	SP729 113	THAME, CUDDINGTON BR	3	2	E	C	C
THAME	Marsworth - Fleet Marston Brook	23.9	SP9217 1508	SP7845 1454	PTAR 0028	SP796 152	THAME, STONE BR AYLESBURY	4	3	D	E	C
THAME	Fleet Marston Bk - Mains Br, Winchendon	5.2	SP7845 1454	SP7491 1229	PTAR 0020	SP776 135	THAME US EYTHROPE LAKE	4	3	E	D	C
THAME	Peppershill Brook - Chalgrove Brook	18.1	SP6533 0636	SU5938 9871	PTAR 0030	SP612 052	THAME, WHEATLEY BR	2	2	C	C	C
THAME	Scotsgrove Brook - Peppershill Brook	6.6	SP7039 0652	SP6533 0636	PTAR 0029	SP704 065	THAME, THAME BR	3	3	C	C	C
THAME	Chalgrove Brook - Thames	10.3	SU5938 9871	SU5780 9321	PTAR 0022	SU579 939	THAME, DORCHESTER BR	2	2	B	B	B
TIDDINGTON BROOK	Tiddington STW - Thame	0.8	SP649 057	SP6490 0646	PTAR 0105	SP6492 0580	TIDDINGTON BROOK ABOVE THAME, TIDDINGTON	2	2	D	C	C
TOWERSEY BROOK	Towersey - Kingsey Cuttle Brook	1.3	SP7346 0500	SP7303 0613	PTAR 0113	SP7380 0619	TOWERSEY BROOK ABOVE KINSEY CUTTLE BROOK	3	3	C	D	D
WARPSGRAVE DITCH	Chalgrove STW - Haseley Brook	1.1	SU649 988	SU6393 9931	PTAR 0065	SU642 993	WARPSGROVE DITCH NEAR RESERVOIR, CHALGROVE COMM	5	5	E	E	E
WENDOVER BROOK	Wendover STW - Bear Brook	5.4	SP8618 0894	SP8614 1280	PTAR 0038	SP861 127	WENDOVER BK, BROOK END	2	1	C	B	B
WHEATLEY DITCH	Wheatley STW - Thame	0.3	SP609 051	SP6121 0514	PTAR 0062	SP611 053	WHEATLEY DITCH AT SUPERSTORE CAR PARK, WHEATLEY	5	5	E	E	E
WORMINGHALL BROOK	Worminghall STW - Thame	3.4	SP650 091	SP6376 0706	PTAR 0087	SP6468 0832	WORMINGHALL BROOK AT ICKFORD ROAD, WORMINGHALL	2	2	D	B	B
WORMINGHALL BROOK	Source - Worminghall STW	3.6	SP6575 1176	SP650 091	PTAR 0039	SP657 118	WORMINGHALL BK, B4011 BR	2	2	C	C	C

Appendix 1

THAME CATCHMENT REVIEW - TABLE OF RIVER QUALITY GQA AND RE

WATERCOURSE	REACH	LENGTH (KM)	UPNGR	DOWNNGR	CHEMCODE	CHEMNGR	CHEMNAME	RE 91-93 OPT	RE 92-94 OPT	GQA 1988-1990	GQA 1991-1993	GQA 1992-1994
BEAR BROOK	Wallonhead Stream - Thame	12.3	SP8794 1162	SP7856 1461	PTAR 0003	SP785 146	BEAR BK US THAME	2	2	B	C	C
BENNETTS DITCH	Source - Thame	2.0	SP6833 0508	SP6708 0578	PTAR 0058	SP6745 0575	BENNETS DITCH AT A418 ROADBRIDGE	3	3	D	C	C
BLACK DITCH	Railway - Kingsey Cuttle Brook	1.9	SP7252 0494	SP7292 0662	PTAR 0109	SP729 062	BLACK DITCH AT A4129	4	4	E	D	D
CHALGROVE BROOK	Source - Thame	12.1	SU6781 9500	SU5938 9871	PTAR 0052	SU5942 9873	CHALGROVE BK, CHISELHAMPTON BR	2	2	B	B	B
CRENDON STREAM	Nr Crendon STW - Thame	1.1	SP700 083	SP7051 0770	PTAR 0110	SP7056 0781	CRENDON STREAM ABOVE THAME	6	6	E	F	F
CRESLOW BROOK	Whitchurch STW - Hardwick Brook	1.6	SP817 208	SP8292 2105	PTAR 0114	SP828 211	CRESLOW BROOK ABOVE HARDWICK BROOK	2	1	B	B	B
DANES BROOK	Horton-c'-Studley STW - Holton Brook	2.3	SP606 119	SP5960 1016	PTAR 0005	SP597 104	DANES BK US HOLTON BK	2	2	D	C	C
DENTON BROOK	Cuddesdon STW - Thame	1.1	SP597 022	SP6010 0137	PTAR 0100	SP6011 0138	DENTON BROOK AT CHIPPINGHURST MANOR, LITTLE MILTON	4	4	C	E	D
DENTON BROOK	Source - Cuddesdon STW	1.5	SP5892 0306	SP597 022	PTAR 0124	SP5930 0244	DENTON BROOK AT DENTON	5	4	C	F	D
DORTON BROOK	Brill - Chearsley Bk (Thame)	3.8	SP6668 1275	SP6902 1403	PTAR 0099	SP6848 1419	DORTON BROOK ABOVE CHEARSLEY BROOK, DORTON	3	3	E	D	C
FLEET MARSTON BROOK	Franks Ditch - Thame	7.7	SP7480 1859	SP7845 1454	PTAR 0007	SP784 155	FLEET MARSTON BK US THAME	3	3	E	D	C
GAINSBRIDGE BROOK	Little Milton STW - Thame	2.0	SP621 005	SP6038 0088	PTAR 0051	SP615 004	GAINSBRIDGE BK, LTL MILTON	2	2	C	C	B
GAINSBRIDGE BROOK	Haseley Wood - Little Milton STW	1.7	SP6344 0133	SP621 005	PTAR 0101	SP6210 0051	GAINSBRIDGE BROOK ABOVE LITTLE MILTON STW	2	2	B	B	B
GARSINGTON STREAM	Garsington STW - Baldon Brook	0.6	SP573 020	SP5689 0158	PTAR 0115	SP5720 0192	GARSINGTON STREAM AT B480, GARSINGTON	4	3	F	E	E
GUC (AYLESBURY ARM)	Source - California Brook	9.9	SP9180 1438	SP8224 1350	PTAR 0009	SP872 140	GUC, COLLEGE BR ASTON CLINTON	4	4	D	E	D
GUC (PITSTONE REACH)	Summit - GUC (Aylesbury Arm)	3.9	SP9448 1221	SP9180 1438	PTAR 0135	SP9199 1418	GUC (PITSTONE REACH) AT MARSWORTH	3	4	<D	D	D
GUC (WENDOVER ARM)	Source - GUC (Pitstone Reach)	2.0	SP9170 1288	SP9289 1386	PTAR 0008	SP924 132	GUC WENDOVER, TRING BR	1	1	C	B	B
HALTON BROOK	Halton - Bear Brook.	2.4	SP8743 1062	SP8710 1278	PTAR 0010	SP871 123	HALTON BK, A41 US BEAR BK	2	1	B	B	B
HARDWICK BROOK	Source - Thame	16.1	SP8497 2485	SP7982 1546	PTAR 0047	SP8067 1878	HARDWICK BK, HARDWICK	2	2	D	B	B
HASELEY BROOK	Source - Warpegrove Ditch	8.3	SP6860 0048	SU6393 9931	PTAR 0116	SU6410 9963	HASELEY BROOK ABOVE WARPSGROVE DITCH	3	2	C	C	B
HASELEY BROOK	Warpegrove Ditch - Thame	5.9	SU6393 9931	SP6007 0039	PTAR 0013	SU613 999	HASELEY BK US THAME	2	2	C	B	B
HENTON STREAM	Chinnor STW - Kingsey Cuttle Brook	1.6	SP759 033	SP7568 0410	PTAR 0111	SP755 042	HENTON STREAM ABOVE KINGSEY CUTTLE BROOK	4	4	E	E	D
HOLTON BROOK	Source - Thame	7.8	SP5938 1048	SP6158 0565	PTAR 0014	SP618 062	HOLTON BK US THAME	3	3	C	D	C
HORSENDEN STREAM	Princes Risboro' STW - Kingsey Cuttle Bk	6.5	SP799 039	SP7540 0475	PTAR 0089	SP776 040	HORSENDEN STREAM AT THE FORD, BLEDLOW	2	2	D	B	B
HORSENDEN STREAM	Princes Risboro' - Princes Risboro' STW	0.4	SP8036 0390	SP799 039	PTAR 0118	SP8050 0359	HORSENDEN STREAM AT BROOKE ROAD, PRINCES RISBORO	2	2	B	B	B
KINGSEY CUTTLE BROOK	Source - Scotsgrove Brook	9.7	SP7682 0184	SP7184 0718	PTAR 0017	SP735 064	KINGSEY CUTTLE BK US SCOTSGROVE BROOK	3	3	C	C	C
LASHLAKE STREAM	Thame STW - Scotsgrove Brook	0.5	SP711 067	SP7092 0708	PTAR 0112	SP7118 0674	LASHLAKE STREAM ABOVE SCOTSGROVE BROOK	5	5	E	E	E
LATCHFORD BROOK	Tetsworth Common - Haseley Brook	5.3	SP6847 0250	SP6544 0074	PTAR 0102	SP653 013	LATCHFORD BROOK AT LATCHFORD	2	2	B	C	C
LEWKNOR BROOK	Lewknor STW - Chalgrove Brook	6.7	SU709 982	SU6622 9820	PTAR 0117	SU679 975	LEWKNOR BROOK AT ROADBRIDGE, NR PYRTON	3	3	C	D	D
MILTON DITCH	Great Milton STW - Thame	1.6	SP625 034	SP6162 0417	PTAR 0063	SP619 043	MILTON DITCH AT GREAT MILTON ROAD, WHEATLEY	2	2	C	C	C
MILTON DITCH	Great Milton - Great Milton STW	1.1	SP6284 0254	SP625 034	PTAR 0103	SP6250 0328	MILTON DITCH AT GREAT MILTON	2	2	B	C	C
PEPPERSHILL BROOK	Chilton - Shabbington Brook	6.6	SP6835 1124	SP6558 0670	PTAR 0043	SP659 073	PEPPERSHILL BROOK, ICKFIELD BRIDGE	4	4	D	E	D
PEPPERSHILL BROOK	Shabbington Brook - Thame	0.5	SP6558 0670	SP6533 0636	PTAR 0107	SP6532 0650	PEPPERSHILL BROOK ABOVE THAME	3	3	E	D	D
POLECAT END DITCH	Forest Hill - Holton Brook	0.9	SP5905 0810	SP5972 0858	PTAR 0121	SP5926 0830	POLECAT END DITCH AT POLECAT END LANE, FOREST HILL	5	5	C	E	E
ROWSHAM BROOK	Wingrave STW - Thame	2.4	SP864 187	SP8471 1759	PTAR 0119	SP8470 1762	ROWSHAM BROOK ABOVE THAME	3	3	E	C	D
SCOTSGROVE BROOK	Haddenham STW - Lashlake Stream	4.5	SP7450 0750	SP7092 0708	PTAR 0034	SP719 071	SCOTSGROVE BK, SCOTSGROVE MILL	3	2	D	C	B
SCOTSGROVE BROOK	Little Kimble - Haddenham STW	14.5	SP8244 0710	SP7450 0750	PTAR 0032	SP752 077	SCOTSGROVE BK US HADDENHAM STW	3	2	D	C	C
SCOTSGROVE BROOK	Lashlake Stream - Thame	1.0	SP7092 0708	SP7039 0652	PTAR 0033	SP709 071	SCOTSGROVE BK US THAME	3	3	D	D	D
SHABBINGTON BROOK	Westfield - Shabbington STW	3.3	SP6761 0903	SP662 073	PTAR 0044	SP677 090	SHABBINGTON BK, WESTFIELD	3	2	E	C	C
SHABBINGTON BROOK	Shabbington STW - Peppershill Brook	1.1	SP662 073	SP6558 0670	PTAR 0045	SP661 071	SHABBINGTON BK, SHABBINGTON BR	4	3	C	E	D
STANTON STREAM	Stanton STW - Holton Brook	1.2	SP586 097	SP5967 1006	PTAR 0108	SP591 096	STANTON STREAM ABOVE HOLTON BROOK	2	2	C	C	C
STOCKLAKE BROOK	Source - Bear Brook	1.8	SP8382 1502	SP8277 1395	PTAR 0120	SP8282 1400	STOCKLAKE BROOK ABOVE BEAR BROOK	3	3	E	D	C
STOKE BROOK	Source - Bear Brook	8.8	SP8485 0953	SP7927 1416	PTAR 0036	SP806 129	STOKE BROOK ABOVE BEAR BROOK	2	1	B	B	B
THAME	Mains Bridge, Winchendon - Scotsgrove Bk	10.5	SP7491 1229	SP7039 0652	PTAR 0021	SP729 113	THAME, CUDDINGTON BR	3	2	E	C	C
THAME	Marsworth - Fleet Marston Brook	23.9	SP9217 1508	SP7845 1454	PTAR 0028	SP796 152	THAME, STONE BR AYLESBURY	4	3	D	E	C
THAME	Fleet Marston Bk - Mains Br, Winchendon	5.2	SP7845 1454	SP7491 1229	PTAR 0020	SP776 135	THAME US EYTHROPE LAKE	4	3	E	D	C
THAME	Peppershill Brook - Chalgrove Brook	18.1	SP6533 0636	SU5938 9871	PTAR 0030	SP612 052	THAME, WHEATLEY BR	2	2	C	C	C
THAME	Scotsgrove Brook - Peppershill Brook	8.8	SP7039 0652	SP6533 0636	PTAR 0029	SP704 065	THAME, THAME BR	3	3	C	C	C
THAME	Chalgrove Brook - Thames	10.3	SU5938 9871	SU5780 9321	PTAR 0022	SU579 939	THAME, DORCHESTER BR	2	2	B	B	B
TIDDINGTON BROOK	Tiddington STW - Thame	0.8	SP649 057	SP6490 0646	PTAR 0106	SP6492 0580	TIDDINGTON BROOK ABOVE THAME, TIDDINGTON	2	2	D	C	C
TOWERSEY BROOK	Towersey - Kingsey Cuttle Brook	1.3	SP7346 0500	SP7383 0613	PTAR 0113	SP7380 0619	TOWERSEY BROOK ABOVE KINSEY CUTTLE BROOK	3	3	C	D	D
WARPSGRAVE DITCH	Chalgrove STW - Haseley Brook	1.1	SU649 988	SU6393 9931	PTAR 0065	SU642 993	WARPSGROVE DITCH NEAR RESERVOIR, CHALGROVE COMM	5	5	E	E	E
WENDOVER BROOK	Wendover STW - Bear Brook	5.4	SP8618 0894	SP8614 1280	PTAR 0038	SP861 127	WENDOVER BK, BROOK END	2	1	C	B	B
WHEATLEY DITCH	Wheatley STW - Thame	0.3	SP609 051	SP6121 0514	PTAR 0062	SP611 053	WHEATLEY DITCH AT SUPERSTORE CAR PARK, WHEATLEY	5	5	E	E	E
WORMINGHALL BROOK	Worminghall STW - Thame	3.4	SP650 091	SP6376 0706	PTAR 0087	SP6468 0832	WORMINGHALL BROOK AT ICKFORD ROAD, WORMINGHALL	2	2	D	B	B
WORMINGHALL BROOK	Source - Worminghall STW	3.8	SP6575 1176	SP650 091	PTAR 0039	SP657 118	WORMINGHALL BK, B4011 BR	2	2	C	C	C

Appendix 1

Appendix 2

ALL CONSENTED DISCHARGES WITH SAMPLE POINTS THAMES REGION
12/10/94 PREPARED BY CH
29/11/94 TABULATED BY AWN

NGR		NAME	QUALIFIER	VOLUME	SUB TYPE	CATCH	URN
SP	63400013000	CHURCH FARM T/E :GREAT HASELEY		4.5	EA WW	19	PTAE.0034
SP	8900014800	POTASH FARM T/E :PUTTENHAM (HERTS)		2.2	EA WW	19	PTAE.0062
SP	8770011900	PARK FARM T/E :ASTON CLINTON		2.2	EA WW	19	PTAE.0006
SP	6660012800	PARK PALE FARM T/E :BRILL		4.5	EA WW	19	PTAE.0015
SP	6770010600	CANONCOURT FARM T/E :CHILTON		3.6	EA WW	19	PTAE.0017
SP	8470011800	COUNTY FARM T/E :STOKE MANDEVILLE		22.7	EA WW	19	PTAE.0069
SP	8050003600	BROOKE ROAD 375MM SWO :PRINCES RISBOROUGH			ED WW	19	PTAE.0059
SP	8020014200	KYLE STEWART LTD WEST SWO :AYLESBURY			ED WW	19	PTAE.0008
SP	9180014200	WATERY LANE 225MM SWO :MARSWORTH			ED WW	19	PTAE.0053
SP	8180015300	HOLMANS BRIDGE 1200MM SWO :AYLESBURY			EDXWW	19	PTAE.0007
SP	7464005230	ICHI BAN FISH INDUSTRIES T/E :TOWERSEY	<	100	EF WW	19	PTAE.0151
SP	9310013800	COLLEGE FARM QUARRY :PITSTONE		2 886 8	EM WW	19	PTAE.0058
SP	8810017260	BOARSCROFT COTTAGE STW, LONG MARSTON :TRING RURAL	<	1	ES WW	19	PTAE.0211
SP	8552008920	LOUDWATER FARM STW :WENDOVER	<	2	ES WW	19	PTAE.0163
SP	9180014100	PINETREE COTTAGE STW :MARSWORTH	<	1	ES WW	19	PTAE.0052
SP	9050014480	LOCK VIEW STW , WILSTONE :TRING RURAL	<	1	ES WW	19	PTAE.0157
SP	8437017740	BRIDGE FARM STW :ASTON ABBOTTS	<	1	ES WW	19	PTAE.0155
SP	7919004170	LONGWICK MILL STW :LONGWICK	<	1	ES WW	19	PTAE.0152
SP	7712005620	LOWER FARM STW :LONGWICK-CUM-ILMER	<	1	ES WW	19	PTAE.0176
SP	9195015300	CHURCH FARM BARNS STW :MARSWORTH	<	3	ES WW	19	PTAE.0187
SP	6359013070	FORRESTERS (26 THE) STW :OAKLEY	<	1	ES WW	19	PTAE.0164
SP	7953002100	STREAMSIDE STW :BLEDLOW CUM SAUNDERTON	<	3	ES WW	19	PTAE.0150
SP	7220014130	WATBRIDGE FARM STW :ASHENDON	<	3	ES WW	19	PTAE.0173
SP	8398024390	PENTON FARM STW :STEWKLEY	<	1	ES WW	19	PTAE.0166
SP	8381018850	LOWER BURSTON FARM STW :ASTON ABBOTTS	<	1	ES WW	19	PTAE.0209
SP	7288006200	PILMOOR ARCH STW :TOWERSEY	<	1	ES WW	19	PTAE.0145
SP	6670009030	LOWER PEPPERSHILL FARM STW :LONG CRENDON	<	2	ES WW	19	PTAE.0201
SP	8570016800	MANOR BARNS STW :HULCOTT	<	5	ES WW	19	PTAE.0184
SP	7839015520	CHURCHDENE STW :FLEET MARSTON	<	5	ES WW	19	PTAE.0138
SP	8760011000	RAF STW :HALTON			ES WW	19	PTAE.0037
SP	8710014500	KLARGESTER LTD STW :ASTON CLINTON		7	ES WW	19	PTAE.0005
SP	8428024100	KINGSBRIDGE FARM STW :STEWKLEY	<	1	ES WW	19	PTAE.0128
SP	8720014000	REDHOUSE STW :ASTON CLINTON	<	1	ES WW	19	PTAE.0194
SP	6385000660	BLACKALLS BARN STW :GREAT HASELEY	<	1	ES WW	19	PTAE.0202
SP	8416023100	NEW DAIRY FARM STW :CUBLINGTON	<	1	ES WW	19	PTAE.0165
SP	6790015400	LAWN FARM STW :WOTTON UNDERWOOD	<	1	ES WW	19	PTAE.0141
SP	8830016200	RED HOUSE FARM STW , LONG MARSTON :TRING RURAL	<	2	ES WW	19	PTAE.0168
SP	6510003600	BELFRY HOTEL NO.2 STW :TIDDINGTON WITH ALBURY	<	11	ES WW	19	PGWE.031
SP	7266005510	WESTFIELD FARM STW :TOWERSEY	<	1	ES WW	19	PTAE.0146
SP	7360017700	LITTLETON MANOR FARM STW :WADDESDON	<	3	ES WW	19	PTAE.0191
SP	7720005700	BENDOX DEVELOPMENTS STW :LONGWICK CUM ILMER	<	2	ES WW	19	PTAE.0140
SP	9046014460	VICTORY HOUSE STW , WILSTONE :TRING RURAL	<	1	ES WW	19	PTAE.0158
SP	8867014780	WOODLANDS STW , PUTTENHAM :TRING RURAL	<	2	ES WW	19	PTAE.0170
SU	6850096600	KNIGHTSBRIDGE HOUSE STW :SHIRBURN	<	1	ES WW	19	PGWE.016
SU	7150093000	FORESTRY COTTAGES (1-6) STW :WATLINGTON			ES WW	19	PGWE.019
SU	6090096600	NEWINGTON H/S STW			ES WW	19	PGWE.014
SU	7093099560	PLOT 3 STW , POSTCOMBE :LEWKNOR	<	1	ES WW	19	PTAE.0122
SU	7093099560	PLOT 4 STW , POSTCOMBE :LEWKNOR	<	1	ES WW	19	PTAE.0123
SU	6742093500	DENNIS COTTAGE STW :BRITWELL	<	1	ES WW	19	PTAE.0110
SU	6095096730	HOLCOMBE LANE STW NO.3 :NEWINGTON	<	1	ES WW	19	PTAE.0109
SU	6920008500	SEPTEMBER COTTAGE STW :LONG CRENDON	<	1	ES WW	19	PGWE.028
SP	9030011200	THE CROWS NEST STW :BUCKLAND	<	14	ES WW	19	PGWE.003
SU	7093099560	PLOT 1 STW , POSTCOMBE :LEWKNOR	<	1	ES WW	19	PTAE.0120
SU	7105099520	RICKSHAW INN STW , POSTCOMBE :LEWKNOR	<	4.5	ES WW	19	PTAE.0135
SU	7082099480	LORNA DOONE STW , POSTCOMBE :LEWKNOR	<	5	ES WW	19	PTAE.0118
SU	7093099560	PLOT 2 STW , POSTCOMBE :LEWKNOR	<	1	ES WW	19	PTAE.0121
SU	6095096720	HOLCOMBE LANE STW NO.2 :NEWINGTON	<	1	ES WW	19	PTAE.0108
SU	6555095100	GLEBE BARN STW :BRIGHTWELL BALDWIN	<	1	ES WW	19	PTAE.0130
SP	7015007020	THAME MEAD FARM STW :LONG CRENDON	<	2	ES WW	19	PTAE.0167
SP	7704003600	WALTONS FARM STW :BLEDLOW CUM SAUNDERTON	<	1	ES WW	19	PTAE.0208
SP	6300005300	WATERSTOCK GOLF CLUB STW :WATERSTOCK	<	8	ES WW	19	PTAE.0212
SP	8507024300	WARREN FARM STW :STEWKLEY	<	2	ES WW	19	PTAE.0207
SP	8980012400	OLD BARN STW :DRAYTON BEAUCHAMP	<	1	ES WW	19	PTAE.0100
SP	7380006700	TYTHROP LODGE STW :KINGSEY		1.1	ES WW	19	PTAE.0043
SP	6441014080	TOUCHBRIDGE STW :BOARSTALL	<	2	ES WW	19	PTAE.0205
SP	5620000800	TOOT BALDON H/S STW		4.7	ES WW	19	PTAE.0079
SP	9040014500	WILSTONE VICARAGE STW :TRING RURAL	<	2	ES WW	19	PTAE.0081
SP	8297020950	WILLOW BROOK FARM STW :ASTON ABBOTS	<	1	ES WW	19	PTAE.0147
SP	8430019800	THE ABBEY STW :ASTON ABBOTTS	<	1	ES WW	19	PTAE.0190
SP	8447019870	WINDMILL HLL BARN STW :ASTON ABBOTTS	<	5	ES WW	19	PTAE.0189
SP	6157009750	WOOD FARM STW :WORMINGHALL	<	1	ES WW	19	PTAE.0136
SP	7750002350	WESTFIELD FARM STW :BLEDLOW CUM SAUNDERTON	<	2	ES WW	19	PTAE.0161
SP	8990012400	THE BARNS STW :DRAYTON BEAUCHAMP	<	3	ES WW	19	PTAE.0027
SP	7961003670	SUMMERLEYS COTTAGE STW :PRINCES RISBOROUGH	<	1	ES WW	19	PTAE.0132
SP	8352021980	MANOR FARM STW :CUBLINGTON	<	1	ES WW	19	PTAE.0103
SP	7217004470	RED ROOF STW :THAME	<	2	ES WW	19	PTAE.0186
SP	9270013910	CANAL COTTAGE STW, LOCK 44 :MARSWORTH	<	1	ES WW	19	PTAE.0178
SP	7030003400	MORETON GAP STW :THAME	<	1	ES WW	19	PTAE.0095
SP	7570011810	SPRINGHILL CENTRE STW :DINTON WITH FORD AND UPTON	<	3	ES WW	19	PTAE.0156
SP	8525011950	GOLF CLUB STW NO.1 :WESTON TURVILLE	<	1	ES WW	19	PTAE.0183
SP	7777003570	GREAT BARN STW , SANDPIT LANE :BLEDLOW CUM SAUNDERTON	<	2	ES WW	19	PTAE.0171
SP	8590008900	DRIFTWOOD STW , NASH LEE ROAD :WENDOVER	<	1	ES WW	19	PGWE.025
SP	7802018050	2 WHITESFIELD FARM COTTAGES STW :QUARRENDON	<	1	ES WW	19	PTAE.0195
SP	5610001600	GARSINGTON SUB STATION STW		0.4	ES WW	19	PTAE.0033
SP	7709005550	FOLLY COTTAGE STW :LONGWICK-CUM-ILMER	<	1	ES WW	19	PTAE.0177
SP	8950015100	OAKLEY HOUSE STW, ASTROPE :TRING RURAL	<	1	ES WW	19	PTAE.0210
SP	9190014100	ANGLERS RETREAT PUBLIC HOUSE STW :MARSWORTH		2	ES WW	19	PTAE.0050
SP	8840011500	GREEN PARK YTC STW :ASTON CLINTON		16	ES WW	19	PTAE.0004
SP	6480006000	DRAYCOTT MANOR FARM STW :TIDDINGTON WITH ALBURY	<	2	ES WW	19	PGWE.027
SP	7980012900	HARTWELL HOUSE PUMPING STATION EMERGENCY DISCHARGE :HARTWE	<	37	ES WW	19	PTAE.0175
SP	8370026100	DEAN TITHE FARM STW :STEWKLEY	<	1	ES WW	19	PTAE.0185
SP	7938006550	STOCKWELL LANE FARMHOUSE STW :LONGWICK CUM ILMER	<	3	ES WW	19	PTAE.0160
SP	8706014490	KEE SERVICES STW :ASTON CLINTON	<	3	ES WW	19	PTAE.0144

Appendix.

SP	6273012550	SLATTERS FARM STW :BOARSTALL	<	1	ES WW	19	PTAE.0139
SP	7501020200	SAYE AND SELE HALL STW :QUAINTON	<	1	ES WW	19	PTAE.0214
SP	8158006760	DOE HILL COTTAGE STW :GREAT & LITTLE KIMBLE	<	1	ES WW	19	PTAE.0154
SP	8760008900	JASMINE CHINESE TAKE AWAY STW :HALTON	<	1	ES WW	19	PTAE.0097
SP	6510003600	BELFRY HOTEL STW :TIDDINGTON WITH ALBURY	<	25	ES WW	19	PTAE.0096
SP	8986012660	COTTAGE STW :DRAYTON BEAUCHAMP	<	1	ES WW	19	PTAE.0105
SP	6180012400	NEW FARM STW :OAKLEY	<	1	ES WW	19	PTAE.0101
SP	6884014840	BERRYFIELD FARM STW :WOTTON UNDERWOOD	<	1	ES WW	19	PTAE.0153
SP	7781003000	RIDGEWAY MEADS STW :BLEDLOW-CUM-SAUNDERTON	<	4	ES WW	19	PTAE.0099
SP	6310011800	JERICHO FARM STW :OAKLEY	<	1	ES WW	19	PTAE.0115
SP	7936016330	BERRYFIELDS LODGE STW :QUARRENDON	<	1	ES WW	19	PTAE.0159
SP	8615023700	DWELLING 1A FACCENDA CHICKENS STW :WING	<	1	ES WW	19	PTAE.0213
SP	7240005510	COTMORE WELLS STW :THAME	<	2	ES WW	19	PTAE.0149
SP	7936016320	BERRYFIELDS STW :QUARRENDON	<	1	ES WW	19	PTAE.0134
SP	7780003900	CULPEPERS STW :BLEDLOW	<	1	ES WW	19	PGWE.031
SP	8124013540	HARTWELL SIDINGS STW :AYLESBURY	<	1	ES WW	19	PTAE 0179
SP	5930010600	DANESBROOK FARM STW :STANTON ST JOHN	<	2	ES WW	19	PTAE.0203
SP	9290016700	GREAT SEABROOK FARM STW :WINGHOE	<	2	ES WW	19	PTAE.0199
SP	8250010850	HALL END FARM STW :STOKE MANDEVILLE	<	1	ES WW	19	PTAE.0200
SU	6095096710	HOLCOMBE LANE STW NO.1 :NEWINGTON	<	1	ES WW	19	PTAE.0107
SP	9106015080	GUBBLECOTE FARM DWELLINGS STW :MARSWORTH	<	3	ES WW	19	PTAE.0206
SP	9185014140	RESERVOIR HOUSE STW :MARSWORTH	<	1	ES WW	19	PTAE.0114
SP	7005013080	MANOR FARM STW :ASHENDON	<	1	ES WW	19	PTAE.0174
SP	8722013680	NEW FORGE STW :ASTON CLINTON	<	2	ES WW	19	PTAE.0131
SP	7950002000	CHERRY TREE NURSING HOME STW :BLEDLOW CUM SAUNDERTON	<	7	ES WW	19	PTAE.0098
SP	7133009150	NOTLEY FARMHOUSE STW :LONG CRENDON	<	1	ES WW	19	PTAE.0113
SP	8520019100	BURSTON RIDGE FARM STW :ASTON ABBOTTS	<	1	ES WW	19	PTAE 0204
SP	6880004500	OXFORDSHIRE GOLF CLUB STW :TETSWORTH			ES WW	19	PTAE.0181
SP	8705018600	MITCHELL LEYES FARM STW :WINGRAVE	<	2	ES WW	19	PTAE.0193
SP	7214004540	BLACKDITCH FARM STW :THAME	<	2	ES WW	19	PTAE.0116
SP	7768003000	MEADOWCROFT STW :BLEDLOW CUM SAUNDERTON	<	1	ES WW	19	PTAE.0162
SP	8592009140	MARQUIS OF GRANBY PUBLIC HOUSE STW :WENDOVER	<	6	ES WW	19	PTAE.0117
SP	8864014720	CHURCH BARN STW , PUTTENHAM :TRING RURAL	<	1	ES WW	19	PTAE.0143
SP	7772003360	CHILTERN MEADOW STW :BLEDLOW-CUM-SAUNDERTON	<	1	ES WW	19	PTAE.0119
SP	9162017360	CHEDDINGTON MANOR STW :CHEDDINGTON	<	1	ES WW	19	PTAE.0172
SP	7059003920	PARK GRANGE FARM STW :THAME	<	1	ES WW	19	PTAE.0126
SP	7781006200	PENNS FLOWER NURSERY STW :LONGWICK	<	1	ES WW	19	PTAE.0148
SP	7680008300	ASTON MULLINS FARMHOUSE STW :DINTON	<	2	ES WW	19	PTAE.0023
SP	8864014750	OAKLEY GRANGE STW , PUTTENHAM :TRING RURAL	<	1	ES WW	19	PTAE.0142
SP	8158009650	MOAT COTTAGE STW :GREAT & LITTLE KIMBLE	<	1	ES WW	19	PTAE.0198
SP	8577008950	FOX CLOSE FARM STW :WENDOVER	<	1	ES WW	19	PTAE.0188
SP	8961014750	DOVER HOUSE STW , ASTROPE :TRING RURAL	<	1	ES WW	19	PTAE.0169
SP	6940004700	MORETON H/S STW		6.8	ES WW	19	PTAE.0055
SP	8345008740	NORTH LEE HOUSE STW :ELLESBOROUGH	<	1	ES WW	19	PTAE 0111
SP	8950014800	ASTROPE FARM STW :TRING RURAL	<	1	ES WW	19	PTAE.0102
SP	6905008430	CARTERS PIECE (29A) STW :LONG CRENDON	<	1	ES WW	19	PTAE.0127
SP	6119002720	MILL STW :CUDDESDON	<	1	ES WW	19	PTAE.0125
SP	9240013300	TRING STW 600MM OUTLET	<	9 500	ESAWW	19	PTAE.0083
SP	7420014400	UPPER WINCHENDEN STW		15.9	ESAWW	19	PTAE.0085
SP	7487017900	WADDESDON STW		550	ESAWW	19	PTAE.0086
SP	7860014600	AYLESBURY STW (LAND AREA)		26 775	ESAWW	19	PTAE.0010
SP	6840014200	DORTON STW		71.5	ESAWW	19	PTAE.0025
SU	6740095400	WATLINGTON STW		2 000	ESAWW	19	PTAE.0087
SP	8640018700	WINGRAVE STW		272	ESAWW	19	PTAE.0092
SU	6020097800	STADHAMPTON STW		270	ESAWW	19	PTAE.0066
SU	6900096500	SHIRBURN H/S STW			ESAWW	19	PGWE.016
SU	7090098200	LEWKNOR STW		91	ESAWW	19	PTAE 0044
SU	5800093600	DORCHESTER STW		605	ESAWW	19	PTAE.0024
SU	6490098800	CHALGROVE STW		1 231	ESAWW	19	PTAE.0016
SP	6500009100	WORMINGHALL STW		5 382	ESAWW	19	PTAE.0093
SP	7810010600	STONE STW		909	ESAWW	19	PTAE.0071
SP	9240013200	TRING STW 2M OUTLET	<	9 500	ESAWW	19	PTAE.0082
SP	7560003900	CHINNOR STW NO.1	<	1 900	ESAWW	19	PTAE 0019
SP	6250003400	GREAT MILTON STW		243	ESAWW	19	PTAE.0035
SP	6850002500	TETSWORTH STW		153	ESAWW	19	PTAE.0072
SP	5910008100	FOREST HILL STW		136	ESAWW	19	PTAE.0031
SP	6820011200	CHILTON (BUCKS) STW	<	325	ESAWW	19	PTAE.0018
SP	7590003300	CHINNOR STW NO.2		3 310	ESAWW	19	PTAE.0020
SP	8480017700	ROWSHAM STW		18	ESAWW	19	PTAE.0064
SP	7110006700	THAME STW		2 498	ESAWW	19	PTAE.0076
SP	7370005700	TOWERSEY STW		109	ESAWW	19	PTAE.0080
SP	5970002200	CUDDESDON STW		137	ESAWW	19	PTAE.0022
SP	7380011900	CUDDINGTON STW		85	ESAWW	19	PTAE.0021
SP	7990003900	PRINCES RISBOROUGH STW		3 900	ESAWW	19	PTAE.0060
SP	6490005700	TIDDINGTON STW		218	ESAWW	19	PTAE 0078
SP	6620007300	SHABBINGTON STW		54	ESAWW	19	PTAE.0065
SP	6220013200	HONEYBURGE H/S STW :BOARSTALL	<	4	ESAWW	19	PTAE.0014
SP	5860009700	STANTON ST JOHN STW		182	ESAWW	19	PTAE.0067
SP	7000008300	LONG CRENDON STW	<	1 092	ESAWW	19	PTAE.0049
SP	6090005100	WHEATLEY STW		920	ESAWW	19	PTAE.0091
SP	7890014800	AYLESBURY STW (900MM OUTLET)	<	27 775	ESAWW	19	PTAE.0009
SP	6060011900	HORTON CUM STUDLEY STW		125	ESAWW	19	PTAE.0042
SP	7450007500	HADDENHAM STW		2 050	ESAWW	19	PTAE 0036
SP	6210000500	LITTLE MILTON STW		186 7	ESAWW	19	PTAE.0046
SP	8490024800	STEWKLEY STW		136	ESAWW	19	PTAE 0068
SP	7860014600	AYLESBURY STW (LAND AREA) STORMWATER			ESZWW	19	PTAE.0106
SP	7980003800	PRINCES RISBOROUGH STW STORM DISCHARGE			ESZWW	19	PTAE.0061
SP	9178014190	WATERY LANE PUMPING STATION :MARSWORTH			ESZWW	19	PTAE.0182
SP	8150013500	SAFEWAYS T/E :AYLESBURY			ET WW	19	PTAE 0197
SP	8051014110	REDLAND READYMIX T/E :AYLESBURY			ET WW	19	PTAE 0180
SP	7250004800	BRITISH OXYGEN CO LTD T/E :THAME			ET WW	19	PTAE.0104
SP	6098005280	DAVENPORT VERNON (OXFORD) LTD T/E :WHEATLEY			ET WW	19	PTAE.0192
SP	8094004610	WHITELEAF SERVICE STATION, MONKS RISBOROUGH T/E :PRINCES RISBOROUG			ET WW	19	PTAE.0196
SP	8974008490	CHIVERY RESERVOIR T/E :WENDOVER	<	910	ETXWW	19	PGWE.036

KEY

<	MAX FLOW	total 187 discharges
>	DWF	
\	MAX FLOW	
$	COMPLEX	

Appendix 3 BIOLOGY

Summary of Macro-invertebrate Monitoring Results

SITE URN	SITE NAME	NGR	BMWP Score
River Thame			
PTAR.0026	At Rowsham Bridge	SP84601760	123
PTAR.0028	At Stone Bridge	SP79601520	147
PTAR.0020	Above Eythrope Lake	SP77601350	98
PTAR.0166	At Nether Wichendon	SP73801192	110
PTAR.0163	Ridge Barn Fm., Cuddington	SP74601240	125
PTAR.0021	At Cuddington Bridge	SP72901130	129
PTAR.0025	At Notley Abbey	SP71500910	113
PTAR.0027	At Shabbington Bridge	SP66800650	152
PTAR.0030	At Wheatley Bridge	SP61200520	173
PTAR.0022	At Dorchester Bridge	SU57909390	188
Hardwick Brook			
PTAR.0047	At Hardwick	SP80701880	119
Bear Brook			
PTAR.0003	Above River Thame	SP78601460	61
Fleet Marston Brook			
PTAR.0127	Above Frank's Ditch	SP74851860	32
PTAR.0126	Below Glebe Ditch	SP76001825	45
PTAR.0007	Above River Thame	SP78401550	108
Scotsgrove Brook			
PTAR.0032	Above Haddenham STW	SP75200770	136
PTAR.0034	At Scotsgrove Mill	SP71900710	107
PTAR.0033	Above River Thame	SP70900710	146
Peppershill Brook			
PTAR.0042	At Westfield Farm	SP67000930	50
PTAR.0107	Above Thame	SP65300650	47
Worminghall Brook			
PTAR.0039	At B4011 Road Bridge	SP65701180	64
PTAR.0087	Ickford Rd., Worminghall	SP64700830	32
Danes Brook			
PTAR.0006	At Honeyburge, Boarstall	SP62301320	89

PTAR.0156	Below Honeyburge House STW	SP62101310	103
PTAR.0005	Above Holton Brook	SP59701040	54
Holton Brook			
PTAR.0014	Above River Thame	SP61800620	89
Haseley Brook			
PTAR.0116	Above Warpsgrove Ditch	SU64109963	62
PTAR.0013	Above Thame	SU61309990	107
Baldon Brook			
PTAR.0002	Above River Thame	SU57609870	106
Chalgrove Brook			
PTAR.0052	At Chieslehampton Bridge	SU59409870	128
Shabbington Brook			
PTAR.0044	At Upper Farm	SP66400760	33
PTAR.0045	At Shabbington Roadbridge	SP66100710	43
Bennetts Ditch			
PTAR.0058	At A418 Roadbridge	SP67400580	20
Tiddington Brook			
PTAR.0105	Above Thame, Tiddington	SP64920580	39
Stanton Stream			
PTAR.0108	Above Holton Brook	SP59150965	78
Wheatley Ditch			
PTAR.0062	At ASDA Car Park	SP61100530	12
Milton Ditch			
PTAR.0103	At Great Milton	SP62500328	65
PTAR.0063	At Great Milton Rd., Wheatley	SP61900430	71
Denton Brook			
PTAR.0124	At Denton	SP59530244	40
PTAR.0100	At Chippinghurst Manor	SP60110138	45
Latchford Brook			
PTAR.0128	Below Tetsworth STW	SP67300290	33
PTAR.0064	At Peggs Farm	SP65400110	61
Warpsgrove Ditch			
PTAR.0065	Chalgrove Common	SU64209930	48
Dorton Brook			

PTAR.0099	Above Chearlsey Brook	SP68481419	42
Lashlake Stream			
PTAR.0112	Above Scotsgrove Brook	SP71180694	42
Black Ditch			
PTAR.0056	Below A4129	SP72700660	34
Towersey Brook			
PTAR.0149	1km Above Towersey	SP73100430	12
PTAR.0113	Above Kinsey Cuttle Brook	SP73800620	44
PTAR.0138	At Towersey Village Green	SP73500510	45
Henton Stream			
PTAR.0147	Below Chinnor STW	SP75870360	26
PTAR.0154	Below Badger Brook	SP75670396	20
Halton Brook			
PTAR.0010	At A41, Above Bear Brook	SP87101230	69
Wendover Brook			
PTAR.0038	At Brook End	SP86101270	112
Stocklake Brook			
PTAR.0175	Above Burcott Lane	SP84301534	40
PTAR.0174	At Footbridge, Bierton	SP85101525	44
PTAR.0120	Above Bear Brook	SP82821400	70
Stoke Brook			
PTAR.0036	Above Bear Brook	SP80601290	75
Creslow Brook			
PTAR.0114	Above Hardwick Brook	SP82802110	79
Rowsham Brook			
PTAR.0119	Above Thame	SP84701762	53
Gainsbridge Brook			
PTAR.0101	Above Little Milton STW	SP62100051	46
PTAR.0051	At Little Milton	SP61500040	56
Horsenden Stream			
PTAR.0118	At Brook Rd, Princess Risborough	SP80500359	32
PTAR.0089	At the Ford, Bledlow	SP77600400	93
Kingsey Cuttle Brook			
PTAR.0017	Above Scotsgrove Brook	SP73500640	91

Garsington Stream			
PTAR.0115	At B480, Garsington	SP57200192	49
GUC			
PTAR.0009	College Bridge, Aston Clinton	SP87201400	83
PTAR.0136	At Bulbourne	SP93331364	104
PTAR.0135	At Marsworth	SP91991418	109
PTAR.0137	250m below Tring Feeder	SP92601358	107
PTAR.0008	At Road Bridge, Tring	SP92401320	95
Tring Feeder			
PTAR.0155	Below GUC, Tring	SP92241300	52
PTAR.0172	Below Admiral Homes Discharge	SP92501276	37
PTAR.0173	At Sutton Close, Tring	SP92571273	37
Haydon Ditch			
PTAR.0159	Above Bear Brook	SP79711413	23
Marsh Baldon Ditch			
PTAR.0150	At Marsh Baldon	SP56649946	47
Milton Common Ditch			
PTAR.0171	At Milton Pools Roadbridge	SP65280315	9
PTAR.0168	Below Harrington Field Farm	SP65200288	36
Postcombe Brook			
PTAR.0130	Below Postcombe	SP71100030	25
Waddesdon Brook			
PTAR.0152	Above Upper Winchendon Stream	SP72901495	40
PTAR.0152	Below Upper Winchendon Stream	SP72571445	47
Pole Cat End Ditch			
PTAR0121	At Pole Cat Lane, Forest Hill	SP59260830	23
Kimblewick Ditch			
PTAR.0145	Above Meadle Brook	SP80190758	22
Lewknor Brook			
PTAR.0117	At Roadbridge, Near Pyrton	SU67909750	80

APPENDIX 4 FLOOD DEFENCE

Improvement and maintenance works can be targeted towards those rivers which do not meet their target standards, particularly where more urban land use bands are involved (A,B,C).

STANDARDS OF SERVICE FOR FLOOD DEFENCE - Land Use Bands and Targets

Land Use Band	Description of typical land use	Target standard * (Annual risk of flood damage)
A (High density urban)	High density urban areas containing significant amounts of both residential and commercial property at risk.	1% - 2%
B (Medium density urban)	Medium density urban areas, some parks and open spaces, or high grade agricultural use at risk.	1% - 4%
C (Low density urban)	Low density urban areas or rural communities. Typically large areas of high grade agricultural land with some properties also at risk from flooding.	2% - 20%
D (Arable farmland)	Generally farmland with occasional properties at risk. Medium productivity agriculture which may also be prone to the effects of waterlogging.	10% - 80%
E (Grassland)	Typically low grade agricultural land or public open space, often grassland or scrub, with very few properties at risk.	Greater than 40%

** Where saline flooding from tidal situations is likely, target standards will be higher.*

** A range is given for standards in acknowledgement of practical issues of implementation. They act as a starting point to guide the investigator of a potential flood alleviation scheme; the resulting standard provided would be the outcome of a case specific and appropriately detailed appraisal. This has to include feasibility of options, their incremental costs in relation to benefits, environmental impact, and any other significant factors. The overlap of target standards between bands is in recognition that varying concentrations of similar features may require equal standards.*

SOS REACHES IN THE THAME CATCHMENT (21/12/95)

River	Rch	Len	Grid Ref DS	Grid Ref US	HEs	LUB		Downstream Name	Upstream Name
0154 /14	1	1.940	SP 75131240	75851401	1.0	E		R.THAME	M.R.L.
0154 /22	1	0.929	SP 89901663	90191740	0.1	E		R.THAME	M.R.L.
0154 /04	1	4.546	SP 65080882	66621100	0.5	E		WORMINGHALL BROOK	M.R.L.
0155 /01	1	4.738	SP 88821510	88861281	6.0	E		WILSTONE BROOK	M.R.L.
0156 /01	1	3.410	SP 86471616	85021358	0.8	E		DRAYTONMEAD BROOK	BEAR BROOK
0158 /00	1	6.798	SP 59399790	56890159	2.8	E		R.THAME	M.R.L.
0154 /12	1	2.144	SP 69510668	68790834	1.4	E		R.THAME	M.R.L.
0162 /00	1	4.447	SP 69930651	70990462	9.3	E		R.THAME	BOW BRIDGE
0162 /00	2	3.985	SP 70990462	70890220	0.5	E		BOW BRIDGE	M.R.L.
0165 /00	1	5.514	SP 71870925	69541273	8.5	E		R.THAME	FOOTBRIDGE
0165 /00	2	3.763	SP 69541273	69241543	0.5	E		FOOTBRIDGE	M.R.L.
0154 /13	1	1.840	SP 72340976	73961057	0.2	E		R.THAME	M.R.L.
0161 /01	1	7.165	SP 59601016	63901430	18.2	D		HOLTON	M.R.L.
0167 /00	1	5.960	SP 78071697	75942001	6.1	E		FLEET MARSTON BROOK	M.R.L.
0156 /00	1	7.109	SP 86071677	87851280	7.5	E		R.THAME	M.R.L.
0154 /16	1	3.714	SP 80061803	79972030	7.7	E		HARDWICK BROOK	M.R.L.
0163 /08	1	2.533	SP 80160993	81940896	4.8	E		SCOTSGROVE BROOK	M.R.L.
0166 /00	1	6.556	SP 78441456	75981825	0.9	E		R.THAME	ROADWAY
0166 /00	2	1.987	SP 75981825	73931823	0.3	E		ROADWAY	M.R.L.
0163 /01	1	1.137	SP 75340818	75090900	1.1	E		SCOTSGROVE BROOK MAIM ARM	M.R.L.
0164 /10	1	2.695	SP 75560480	76080417	0.7	E		HORSENDEN STREAM	M.R.L.
0164 /02	1	1.550	SP 73830614	74050485	9.0	D		TOWERSEY BROOK	M.R.L.
0160 /00	1	5.762	SP 60060040	64109957	24.0	D		R.THAME	TRACK
0160 /00	2	5.159	SU 64109957	67060109	6.3	E		TRACK	FIELD BDRY (PARISH BDY)
0160 /00	3	3.617	SP 67060109	69609952	3.2	E		FIELD BDY (PARISH BDY)	M.R.L.
0163 /02	1	0.597	SP 76020878	75700928	0.1	E		SCOTSGROVE BROOK MAIN ARM	M.R.L.
0161 /00	1	5.205	SP 61590565	59730858	0.8	E		R.THAME	POLECAT END LANE
0161 /00	2	2.580	SP 59730858	59281063	2.7	E		POLECAT END LANE	M.R.L.
0164 /06	1	5.314	SP 77030631	77910431	1.3	E		LONGWICK BROOK	M.R.L.
0164 /00	1	6.323	SP 72340708	75710430	2.2	E		SCOTSGROVE MILL STREAM	RAILWAY
0164 /00	2	2.053	SP 75710430	76830290	0.6	E		RAILWAY	M.R.L.
0160 /01	1	2.451	SP 65440076	66370152	2.6	E		HASELEY BROOK	M.R.L.
0157 /00	1	4.733	SP 88451680	91471450	1.5	E		RIVER THAME	R.THAME
0164 /04	1	5.749	SP 74220620	78330564	11.6	E		KINGSLEY CUTTLE BROOK	M.R.L.
0163 /05	1	2.650	SP 78980834	81260818	2.7	E		MEADLE BROOK	M.R.L.
0163 /03	1	6.149	SP 76800894	80500586	7.8	E		SCOTSGROVE BROOK	M.R.L.
0164 /07	1	0.789	SP 74490605	74990551	0.3	E		ILMER UPPER DITCH	M.R.L.
0154 /08	1	5.970	SP 65340638	67611062	20.5	D		R.THAME	M.R.L.
0167 /01	1	2.958	SP 78661844	78202053	1.0	E		DENHAM BROOK	M.R.L.
0154 /03	1	4.390	SP 63780705	65231004	8.3	E		R.THAME	OAKLEY BROOK
0154 /03	2	7.002	SP 65231004	65761177	10.9	E		OAKLEY BROOK	M.R.L.
0155 /00	1	7.078	SP 86501668	90291368	3.9	E		R.THAME	M.R.L.
0165 /01	1	6.916	SP 70221178	74171533	0.8	E		CHEARSLEY BROOK	M.R.L.
0164 /01	1	1.322	SP 73760635	73570515	3.7	D		KINGSEY CUTTLE BROOK	M.R.L.
0154 /02	1	6.467	SP 63040708	63221212	0.2	E		R.THAME	M.R.L.
0154 /20	1	4.793	SP 87151673	89301883	0.1	E		R.THAME	M.R.L.
0163 /00	1	4.586	SP 70470699	74370750	7.4	E		R.THAME	RAILWAY
0163 /00	2	5.674	SP 74370750	77590955	11.3	E		RAILWAY	ROADWAY
0163 /00	3	4.983	SP 77590955	81660935	15.3	D		ROADWAY	ROADWAY

0163 /00 4 2.910 SP 81660935 82440709 6.7 E ROADWAY M.R.L.
0154 /09 1 4.303 SP 65580668 67670902 0.1 E PEPPERSHILL BROOK M.R.L.
0163 /10 1 0.968 SP 80481006 81181036 2.4 D SCOTSGROVE BROOK M.R.L.
0163 /04 1 1.979 SP 78590822 79530662 0.4 E MEADLE BROOK M.R.L.
0163 /11 1 1.415 SP 82190911 83320881 2.4 E SCOTSGROVE BROOK M.R.L.
0154B/00 10 4.478 SP 75131240 79151490 3.4 E BEACHENDON BROOK RAILWAY
0154B/00 11 4.191 SP 79151490 81771526 30.0 D RAILWAY HOLMAN'S BRIDGE
0154B/00 13 5.443 SP 84601759 88451680 4.1 E ROWSHAM BRIDGE LONG MARSTON BROOK
0154B/00 14 2.920 SP 88451680 90891669 2.9 E LONG MARSTON BROOK M.R.L.
0154A/00 1 5.458 SU 57829321 59889558 29.9 D R.THAMES FOOTBRIDGE
0154A/00 2 4.327 SU 59889558 59389875 9.4 E FOOTBRIDGE CHISELHAMPTON BRIDGE
0154A/00 3 6.239 SU 59389875 61260270 1.4 E CHISELHAMPTON BRIDGE CUDDESDON MILL STREAM
0154A/00 4 6.812 SP 61260270 63180546 5.8 E CUDDESDON MILL STREAM WATERSTOCK MILL SIDE 0154A/00 5 4.892 SP 63180546 64880647 5.7 E WATERSTOCK MILL SIDE CHANNEL ICKFORD BRIDGE
0154A/00 6 3.694 SP 64880647 67010618 1.6 E ICKFORD BRIDGE SHABBINGTON LOOP
0154A/00 7 4.214 SP 67010618 69510668 4.6 E SHABBINGTON LOOP CRENDON STREAM
0154A/00 8 6.113 SP 69510668 72300932 44.3 D CRENDON STREAM RAILWAY BR. NOTLEY ABB
0154B/00 9 6.319 SP 72300932 75131240 16.4 D RAILWAY BR. NOTLEY ABBEY BEACHENDON BROOK
0159 /00 1 5.000 SU 59399871 62789714 21.8 D R.THAME CHALGROVE MILL STREAM
0159 /00 2 4.300 SU 62789714 66089617 66.7 C CHALGROVE MILL STREAM M.R.L.
0154B/00 12 5.835 SP 81771526 84601759 26.0 D HOLMAN'S BRIDGE ROWSHAM BRIDGE
0168 /00 2 4.011 SP 84301368 87631231 7.8 E BEDGROVE BROOK M.R.L.
0168 /00 1 6.845 SP 78551462 84301368 920.7 A R.THAME BEDGROVE BROOK
0168 /03 1 2.250 SP 79181421 79741287 0.2 E BEAR BROOK M.R.L.
0168 /08 1 2.447 SP 80541394 84410853 38.4 C BEAR BROOK M.R.L.
0168 /12 1 4.500 SP 86131282 85930975 18.1 D BEAR BROOK M.R.L.
0168 /07 1 0.731 SP 84360914 84410853 2.1 D STOKE BROOK M.R.L.
0168 /02 1 8.774 SP 80201390 85550918 7.7 E BEAR BROOK M.R.L.
0168 /10 1 2.220 SP 84301368 83911156 24.1 C BEAR BROOK M.R.L.
0168 /11 1 1.833 SP 84451365 84751193 4.1 E BEAR BROOK M.R.L.
0168 /05 1 1.953 SP 80661275 80141156 0.3 E STOKE BROOK M.R.L.
0168 /13 1 2.024 SP 87101278 87551093 41.1 C BEAR BROOK M.R.L.
0164 /09 1 5.919 SP 75340479 79160417 79.2 C KINGSEY CUTTLE BROOK M.R.L.
0168 /04 1 0.519 SP 79991325 79351290 0.1 E HARTWELL DITCH M.R.L.
0167 /02 1 0.758 SP 76651944 76482020 3.1 D DENHAM BROOK M.R.L.
0165 /02 1 0.561 SP 69021404 68501416 0.3 E CHEARSLEY BROOK M.R.L.
0164 /05 1 0.713 SP 77030631 77250573 2.5 D LONGWICK BROOK M.R.L.
0156 /02 1 0.824 SP 86521463 85931408 0.1 E DRAYTONMEAD BROOK M.R.L.
0155 /04 1 1.067 SP 89551510 89871426 7.8 D WILSTONE BROOK M.R.L.
0154 /15 1 1.982 SP 79881592 81191696 5.4 D HARDWICK BROOK M.R.L.
0154 /10 1 0.418 SP 67060968 67011009 0.1 E PEPPERSHILL BROOK M.R.L.
0154C/00 1 4.750 SP 79811546 80061830 9.0 E R.THAME DUN MILL BROOK
0154C/00 2 7.301 SP 80061803 82862096 8.6 E DUN MILL BROOK ROADWAY
0154C/00 3 6.262 SP 82862096 83162334 5.2 E ROADWAY M.R.L.