

GOYT/ETHEROW SUB-CATCHMENT REPORT



ENVIRONMENT AGENCY

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NRA

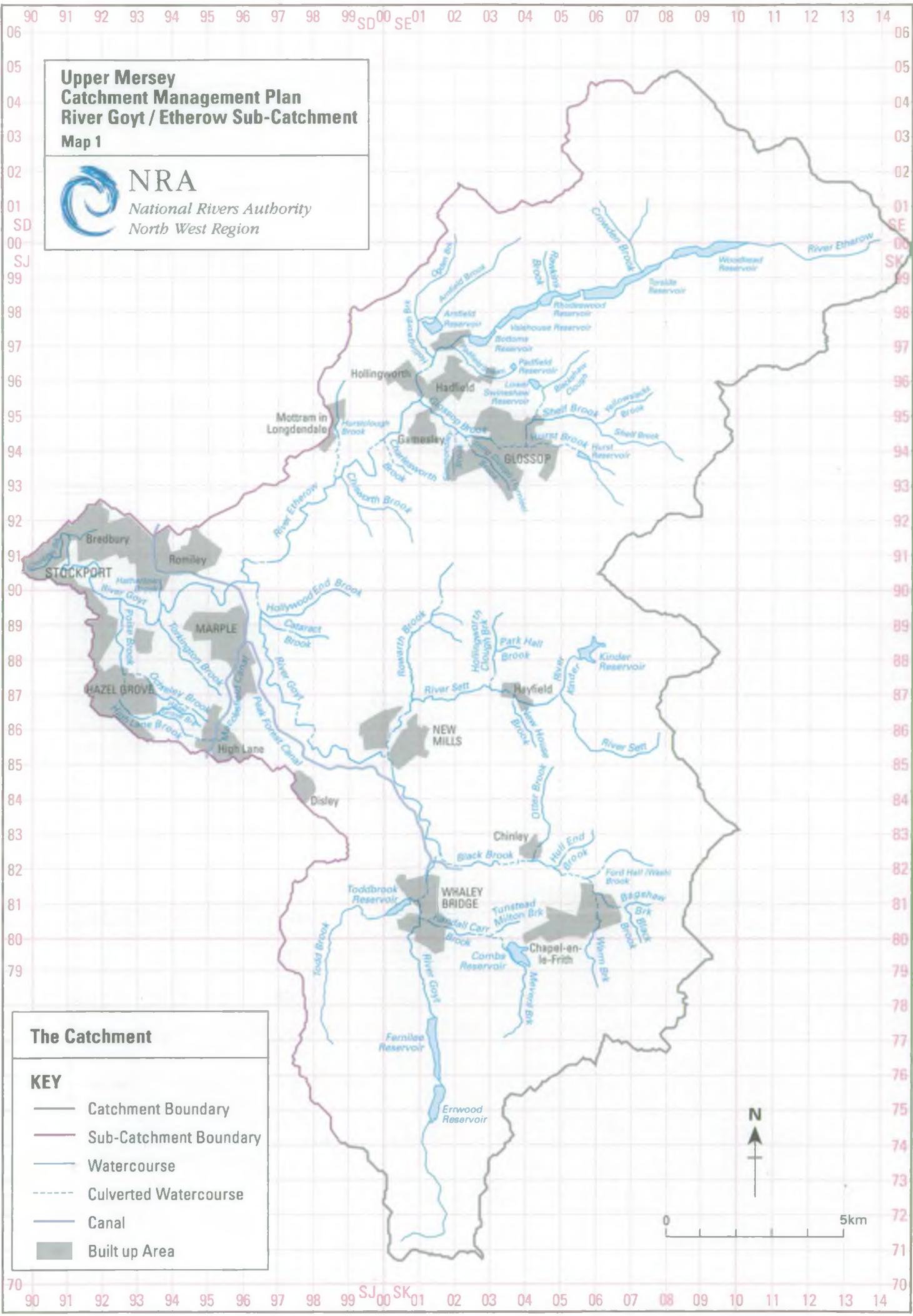
*National Rivers Authority
North West Region
February 1996*

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 1**



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National Rivers Authority
North West Region



The Catchment

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- Culverted Watercourse
- Canal
- Built up Area



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1 CATCHMENT MANAGEMENT PLANNING - CONCEPT AND PROCESS

1.1 THE NATIONAL RIVERS AUTHORITY (NRA)

The NRA's mission statement is as follows:

The National Rivers Authority (NRA) will protect and improve the water environment. This will be achieved through effective management of water resources and by substantial reductions in pollution. The NRA aims to provide effective defence for people and property against flooding from rivers and the sea. In discharging its duties it will operate openly and balance the interests of all who benefit from and use rivers, groundwaters, estuaries and coastal waters. The NRA will be business like, efficient and caring towards its employees.

The NRA established in 1989, is responsible for protecting and improving the water environment within England and Wales. It has a wide range of responsibilities which include:

- Flood defence, including the protection of people and property.
- Flood warning.
- Effective management of water resources.
- Control of pollution and improving the quality of rivers, groundwaters and coastal waters.
- Maintenance and improvement of fisheries.
- Promotion of water based recreation including navigation.
- Conservation of the natural water environment.

To achieve its aims, the NRA must work with or seek to influence central government, local government, industry, commerce, farming, environmental organisations, riparian owners and the general public. Successful management of the water environment requires consideration of a wide range of interests and requirements which may sometimes be in conflict.

1.2 ENVIRONMENT AGENCY

From April 1996 the Environment Agency will have all the powers and responsibilities of the NRA, combined with those of Her Majesty's Pollution Inspectorate (HMIP) and the Waste Regulation Authorities, thus giving control over the full range of environmental problem areas.

It is thought that future Catchment Management Plans (CMPs) will be of increased scope to cater for these wider responsibilities.

1.3 SCOPE AND PROCESS OF CATCHMENT MANAGEMENT PLANNING

The production of Catchment Management Plans within the NRA involves three stages:

- The Catchment Management Plan Consultation Report.
- The Catchment Management five year Action Plan.
- The Annual Review.

Consultation Report

The Consultation Report includes the following elements:

Vision

The vision expresses the realistic long term aims for the catchment within a context of up to 25 years.

Uses

The uses of the catchment are identified and discussed. Information is presented in the form of a map with supporting text. Uses that may have impact on the water environment and/or impose requirements on the water environment.

Objectives

The objectives for the use have been considered and summarised.

Issues Arising

Having considered the current state of the catchment and compared it to the objectives, the issues in need of rectification have been identified.

These are listed, referenced and are discussed in more details in the issues section.

Issues and Options

The identified issues are discussed and where possible some options for their resolution are proposed.

The CMP Consultation Report is intended to form a basis for consultation between the NRA and all those with interests in the catchment.

Consultees may wish to:

- Raise additional issues not identified in the plan.
- Comment on the issues and options identified in the plan.
- Suggest alternative options for resolving identified issues.

The NRA recognises that many of the issues and options for action identified by the consultation plan will involve organisations or individuals other than the NRA and their views will be crucial to the preparation of the Action Plan.

Catchment Management Action Plan

The Action Plan will be produced following consultation and will have regard to the comments received. Once produced, the plan will form a basis for the NRA's actions within the catchment for the next five years and also provide a public document forming a framework for the NRA's interaction with other organisations. The NRA will be seeking commitment to planned actions by others wherever possible.

Annual Review

The NRA will be jointly responsible, with other identified organisations and individuals, for implementing the Action Plan. Progress will be monitored and normally reported annually, by means of a review document which will be publicly available.

The review document will comprise the following information:

- A detailed comparison of actual progress against planned progress.
- Identification of additional actions to maintain progress in the light of changes in the catchment.
- Consideration of the need to update the catchment management plan.

Update requirements will obviously depend on the particular needs of the catchment. However, updates to the management plan will normally be undertaken every five years. Key organisations and individuals forwarding comments will receive an annual review paper to update them with the action plan progress.

The Upper Mersey Catchment Management Plan Consultation Report (February 1996) attempts to highlight the most significant issues and solutions for rectification within a time scale of five years.

We Would Like to Here Your Views

- Have all the major issues been highlighted
- Have all the options been considered for resolving the issues that have been identified?
- Do you have any comments to make regarding the plan in general?
- Comments on the Upper Mersey Catchment Management Plan Consultation Report should be received by 1st June 1996.
- All written responses shall be considered to be in the public domain unless Consultees explicitly request otherwise
- If you would like further detailed information or would like to comment on this document please write to:

Catchment Management Planning Officer
National Rivers Authority
North West Region
"Mirwell"
Carrington Lane
SALE
M33 5NL

Tel: 0161-973-2237
Fax: 0161-973-4601

Front Cover Photograph : Shelf Brook, Tributary of the River Etherow

2 OVERVIEW OF THE CATCHMENT

2.1 INTRODUCTION (Map 2 : River Network)

For the purposes of this plan, the River Goyt sub-catchment consists of the Goyt, the River Etherow and their tributaries. The extent of coverage is from the head-waters of each watercourse down to the confluence with the Goyt.

The Goyt rises on Whetstone Ridge, to the south west of Buxton at an altitude of 520m AOD and flows north through Errwood and Fernilee reservoirs. The Goyt is designated as Main River from the outlet of Fernilee Reservoir, at an altitude of 210m AOD. From here the river continues in a northerly direction through Whaley Bridge, Furness Vale, New Mills and Marple before turning west to flow towards its confluence with the River Tame at an altitude of 40m AOD.

There are three main tributaries on the eastern side of the Goyt. Black Brook drains the Chapel-en-le-Frith area, with altitudes of up to 530m AOD and its confluence with the Goyt is downstream of Whaley Bridge. The River Sett drains the Hayfield/Kinder Scout area of the High Peak District, with altitudes of up to 630m AOD and joins the Goyt in the town of New Mills. The Etherow is the largest tributary of the catchment and drains the northern area of the Peak District and also the town of Glossop. The upper reaches of the Etherow are dominated by five large reservoirs, with the surrounding catchment rising to altitudes of 580m AOD.

The only Main River tributaries on the western side of the River Goyt are Torkington and Poise Brooks, which are at a low altitude and drain the Hazel Grove area.

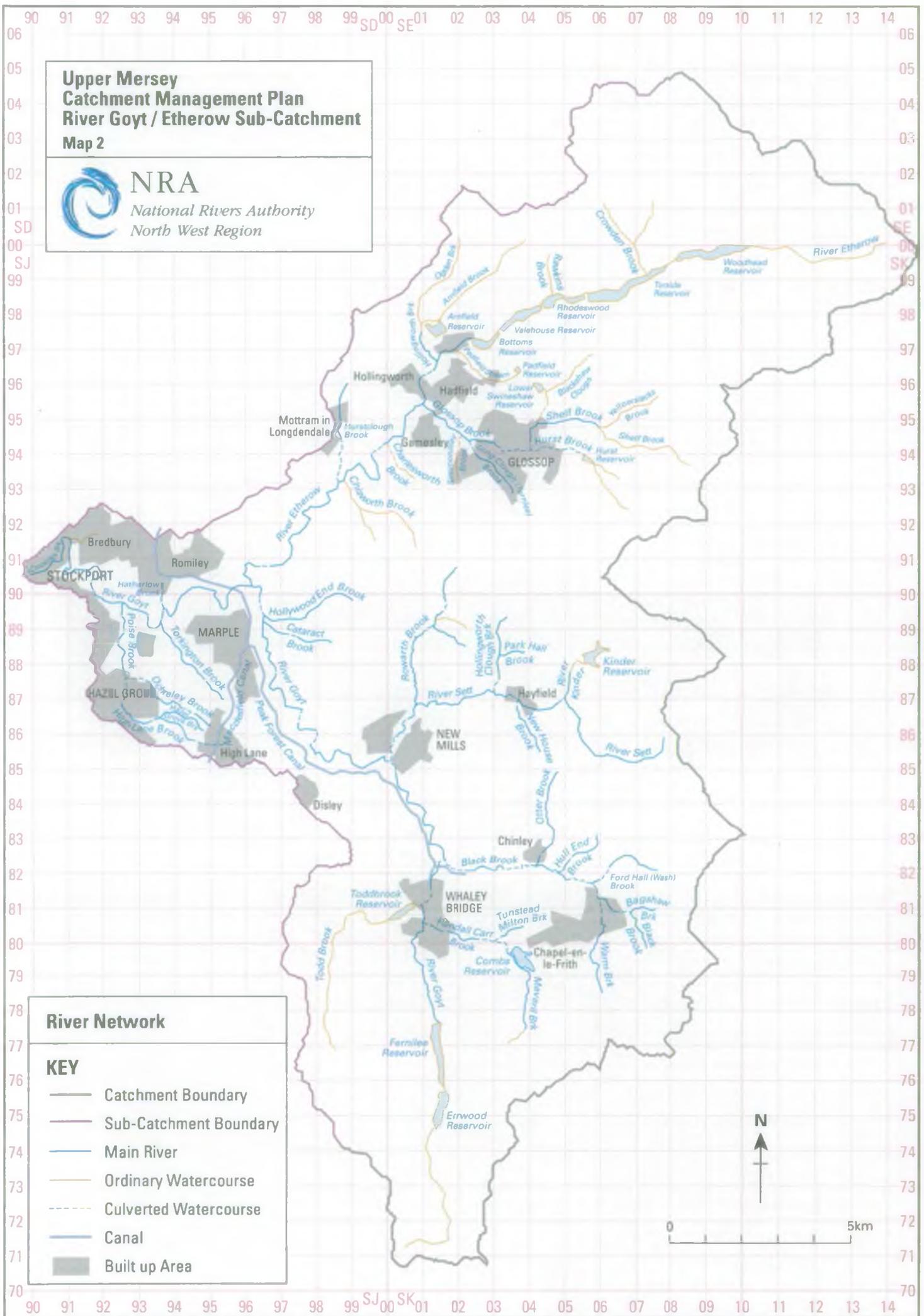
The total catchment area of the Goyt is 365 km² and the areas of some of the main tributaries are as follows :-

River Etherow	152 km ²
River Sett	46 km ²
Black Brook	36 km ²

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 2**



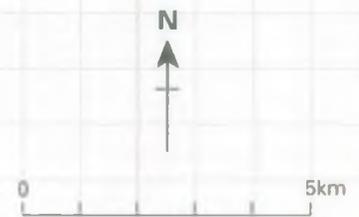
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River Network

KEY

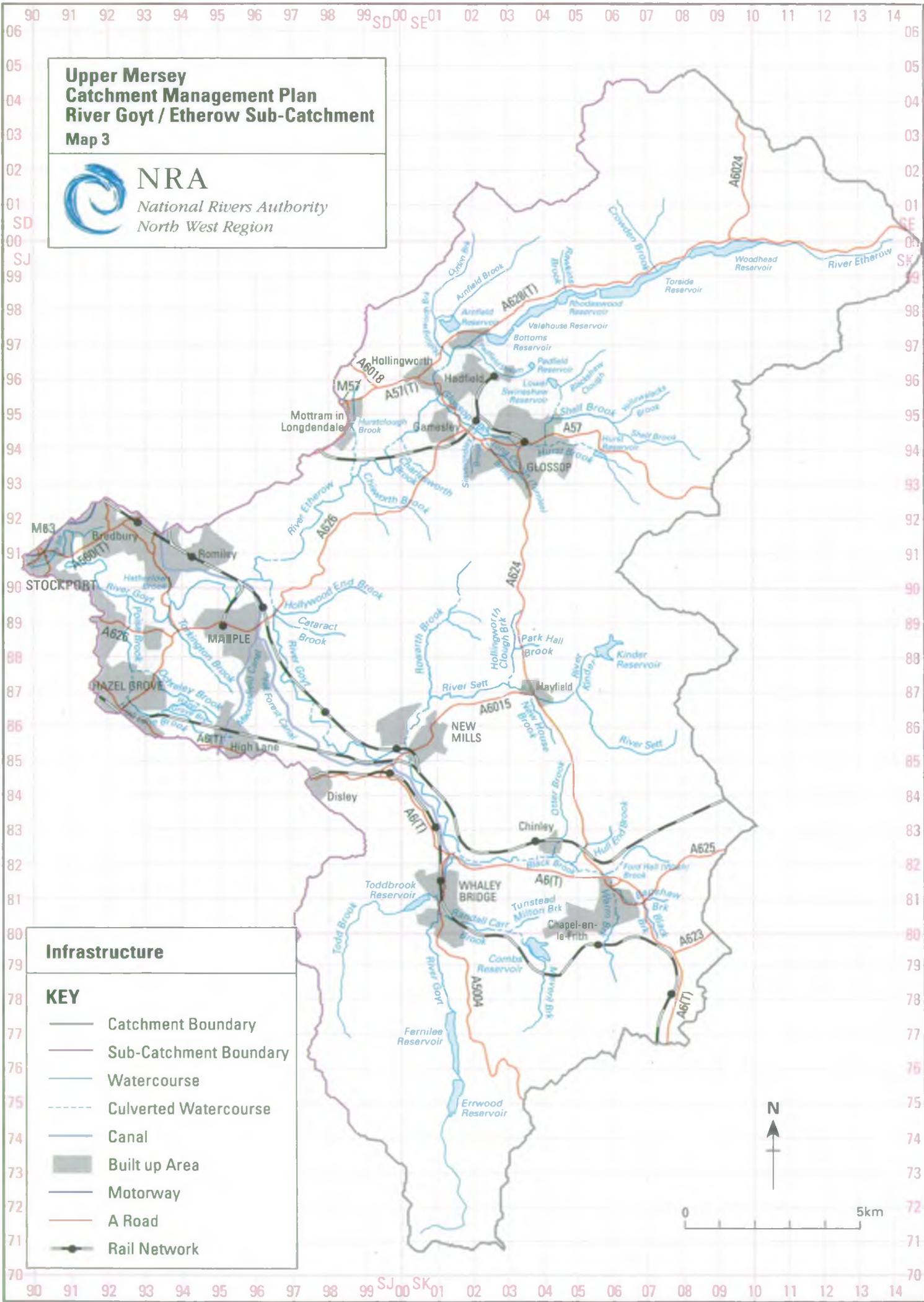
- Catchment Boundary
- Sub-Catchment Boundary
- Main River
- Ordinary Watercourse
- - - Culverted Watercourse
- Canal
- Built up Area



**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 3**



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North West Region



Infrastructure

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- - - Culverted Watercourse
- Canal
- Built up Area
- Motorway
- A Road
- Rail Network



0 5km

2.2 GOYT/ETHEROWCATCHMENT DETAILS (MAP 3)

AREA 365 km²

MAIN TOWNS

Chapel-en-le-Frith
Glossop
Hazel Grove
Marple
New Mills
Romiley
Stockport
Whaley Bridge

ADMINISTRATIVE DETAILS

District Councils:-

Derbyshire County Council
High Peak Borough Council
Macclesfield Borough Council
Stockport Metropolitan Borough Council
Tameside Metropolitan Borough Council

NRA:-

North West Region - South Area

Water Services Companies:-

North West Water Limited
Severn Trent Water Limited

Principal Sewage Treatment Works:-

Glossop STW
Hazel Grove STW
Whaley Bridge STW

TOPOGRAPHY

Ground Levels:-

Min. Level	40m AOD
Max. Level	630m AOD

GEOLOGY

Solid Geology : East - Carboniferous Millstone Grit Series
Centre - Carboniferous Coal Measures
West - Permo-Triassic Sandstone

Superficial Geology : East - Peat and Drift Free (uplands)
West - (Uplands) predominantly Glacial Till (boulder clay)

WATER RESOURCES

Availability:- Groundwater :- Generally site specific
Surface Water :- Good availability

Flow Monitoring Stations within the Goyt/Etherow Catchment:-

			Daily Flows m ³ /sec		
Station	Watercourse	NGR	Maximum	Median	Minimum
Marple Bridge	Goyt	SJ9637 8979	70.1	2.3	0.4
Compstall	Etherow	SJ9624 9078	65.5	1.8	0.3

Largest Abstraction 154.5 MI/d

TOTAL LICENSED ANNUAL QUANTITIES

Groundwater 2,782 MI
Surface 99,046 MI

FLOOD PROTECTION

Length of Designated Main River:- 130 km
(maintained by NRA)

Riparian owned debris screens cleaned
by the NRA on a best endeavours basis:- 6

WATER QUALITY

Length of River in General Quality Assessment Chemical Grade

1994 Assessment

Grade A (Good)	12.5 km	Grade D (Fair)	13.5 km
Grade B (Good)	43.9 km	Grade E (Poor)	-
Grade C (Fair)	38.2 km	Grade F (Bad)	-

FISHERIES

Length of trout (salmonid) fishery:-	45.5 km
Length of coarse (cyprinid) fishery:-	15.6 km

CONSERVATION

Sites of Special Scientific Interest (SSSI) in the catchment:-	7
SSSIs associated with River Corridors and/or wetland habitats:-	7
Sites of Special Biological Importance (SBI) in the catchment:-	117
SBIs which are associated with River Corridors and/or wetland habitats:-	84
Environmentally Sensitive Areas (ESA) in the catchment:- (covering a total area of 190 sq km)	2
Special Protection Areas (SPA) in the catchment:- (covering an area 112 sq km)	1
The Peak District National Park in the catchment covers 215 sq km	

2.3 HYDROLOGY

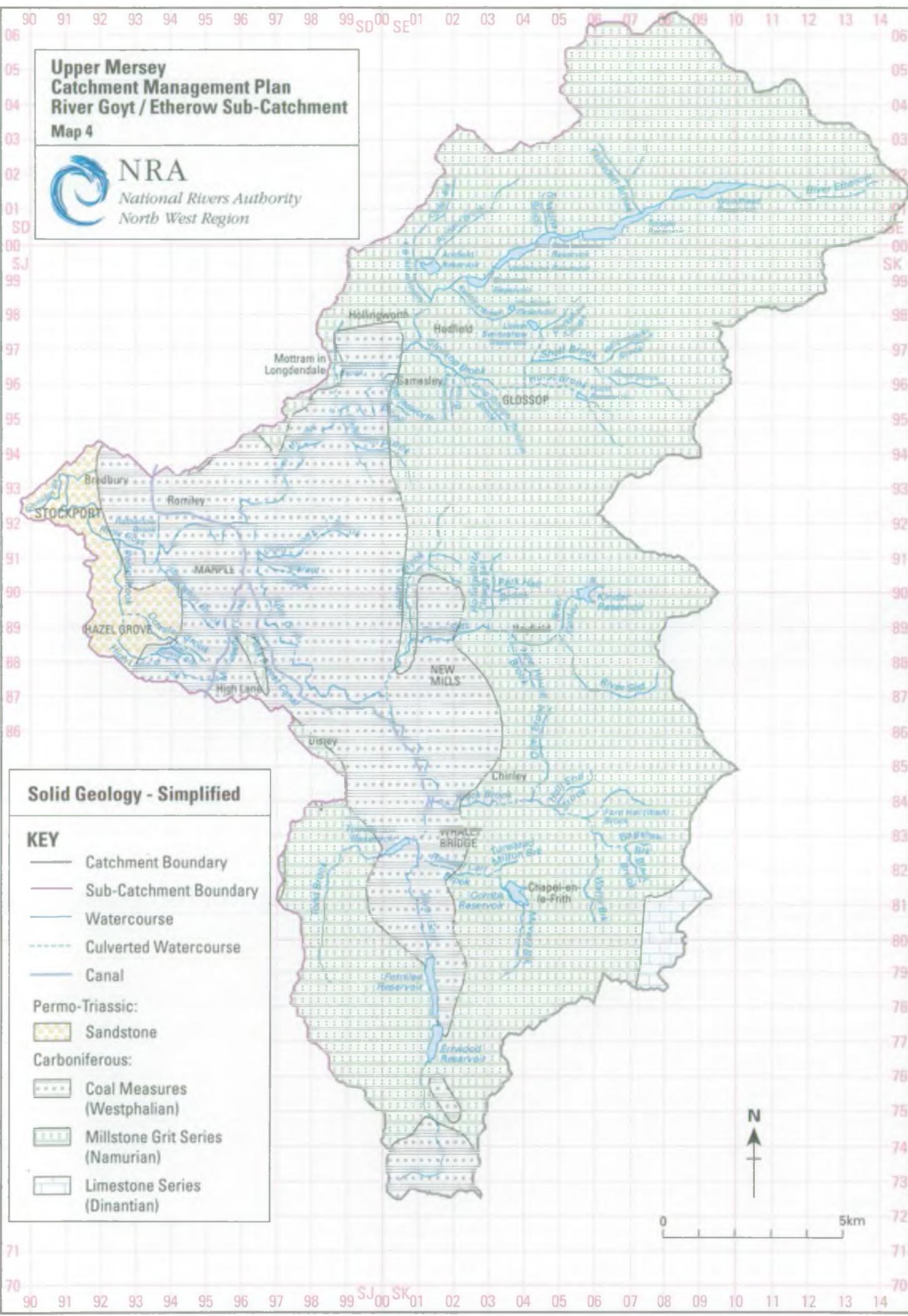
Average rainfall values vary from 886mm to 1336mm.

The actual rainfall recorded for the Goyt catchment (as recorded at Kinder Filters raingauge) in recent years is:

Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	LTA 1961- 1990
Rainfall mm	1403	1160	1274	1065	1116	1029	1208	1124	1231	992	1175

LTA - Long Term Average

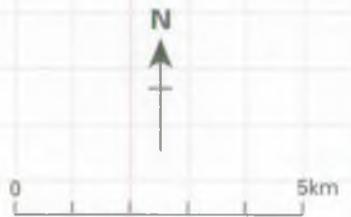
**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 4**



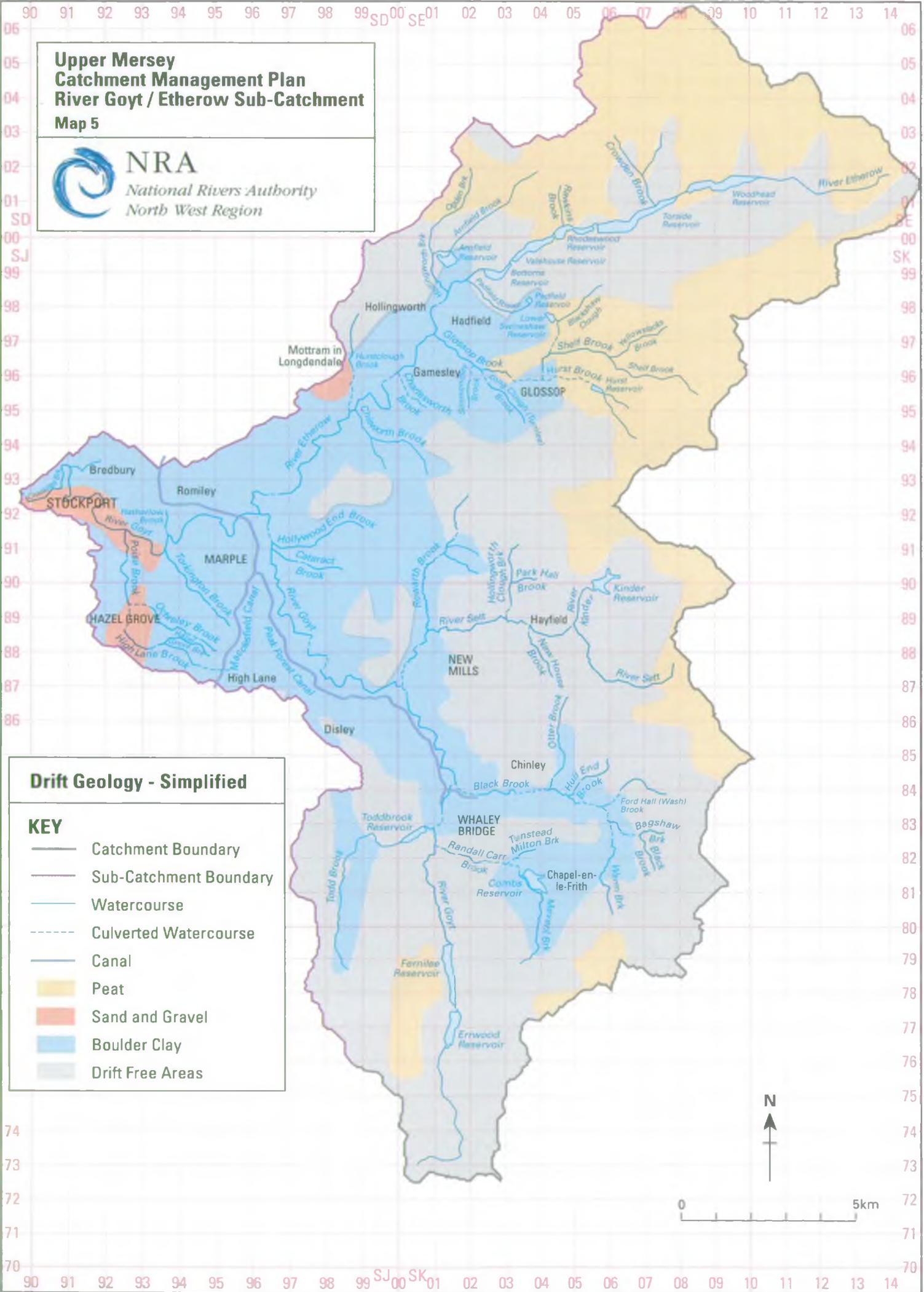
Solid Geology - Simplified

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- - - Culverted Watercourse
- Canal
- Permo-Triassic:
 - Sandstone
- Carboniferous:
 - Coal Measures (Westphalian)
 - Millstone Grit Series (Namurian)
 - Limestone Series (Dinantian)



**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 5**



Drift Geology - Simplified

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- Culverted Watercourse
- Canal
- Peat
- Sand and Gravel
- Boulder Clay
- Drift Free Areas



2.4 GEOLOGY (Maps 4 & 5 : Solid and Drift Geology)

With the exception of a very small area of Permo-Triassic sandstone and marl in the extreme west, the entire catchment is underlain by strata of Carboniferous age. Although a limited outcrop of limestones, forming the core of the "Derbyshire Dome", occur to the east of Chapel-en-le-Frith, Millstone Grit Series (Namurian) rocks dominate the eastern half of the catchment. Younger Coal Measures (Westphalian) strata are present to the west. These both comprise alternating sequences of shales/mudstones, siltstones and sandstones. They tend to be only gently folded, but have been affected by faulting. Thicker coarse grained sandstones occur in the Namurian, forming the uplands of the Pennines, for example Kinder Scout, whilst shales/mudstones predominate in the Westphalian succession. The latter also contains a number of coal seams.

Although much of the lower ground underlain by the Permo-Triassic and Coal Measures strata is covered by drift deposits, principally glacial till (boulder clay), this tends to be absent on the higher ground to the east. However, extensive peat deposits have developed on the gritstone uplands.

2.4.1. Mineral Extraction

Surface mineral workings are widespread, principally sandstone extraction on the Millstone Grit Series to the east. In addition, there are local clay or marl pits, sand and gravel pits and also occasional shale pits.

Underground working of coal has taken place in the west of the catchment, although many such workings are not officially recorded.

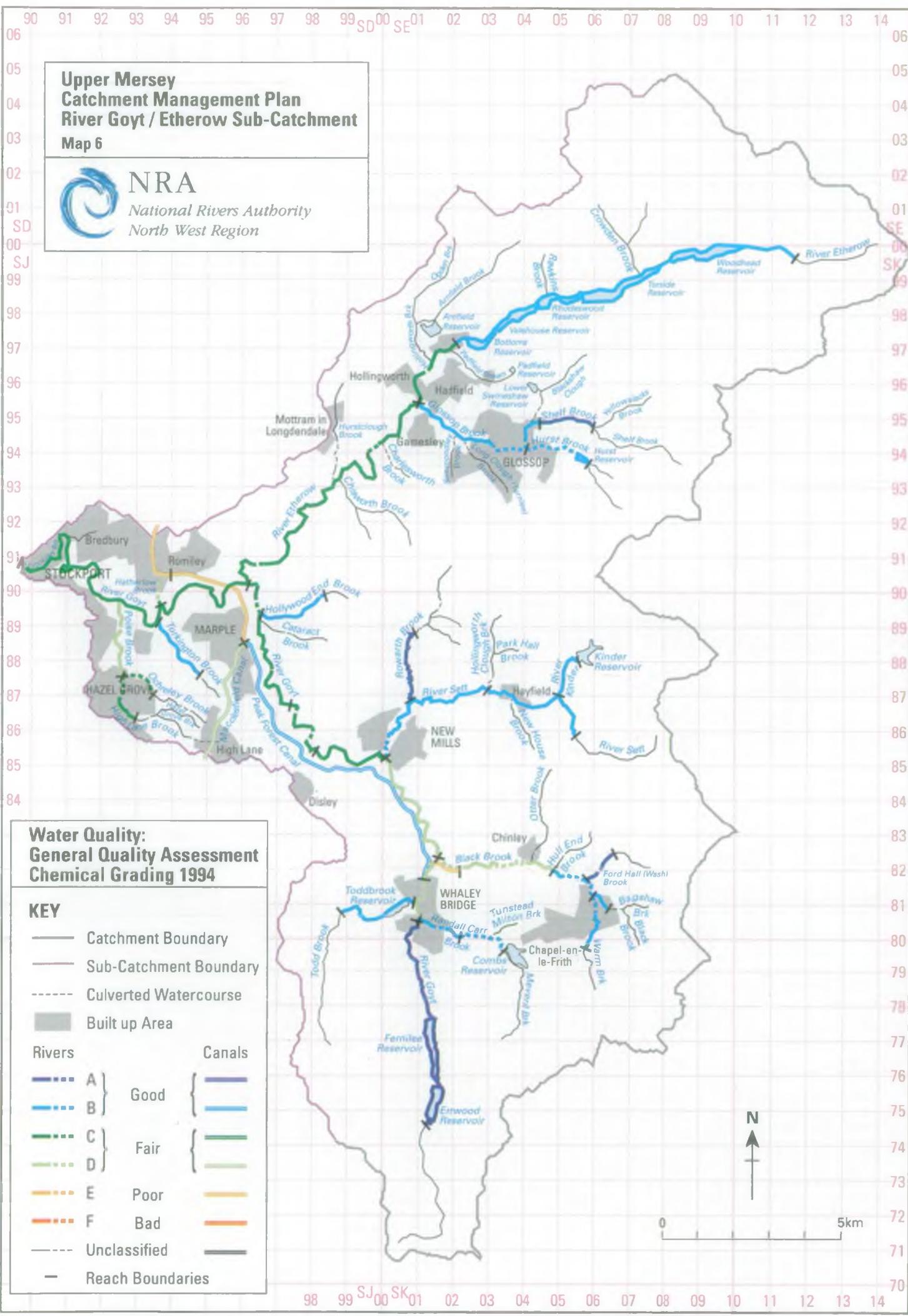
2.5 HYDROGEOLOGY

The Carboniferous sandstones tend to act as individual "minor" aquifer units separated by lower permeability shales/mudstones. Groundwater movement is generally by fissure flow. The presence of old coal workings in the Coal Measures can give rise to complex and rapid groundwater flow and can adversely affect groundwater quality.

Similarly, the Carboniferous Limestones have been subject to solution, producing complex fissure controlled flow systems. The Permo-Triassic sandstone forms the eastern limit of an extensive major aquifer which extends northwards to Manchester, south to Macclesfield and west through to Liverpool.

Depending on the nature and thickness of the drift deposits, the underlying solid aquifers may be in hydraulic continuity with surface watercourses.

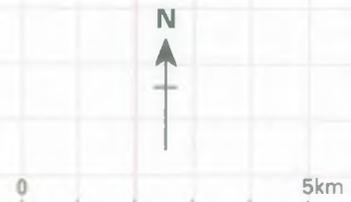
**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 6**



**Water Quality:
General Quality Assessment
Chemical Grading 1994**

KEY

- Catchment Boundary
 - Sub-Catchment Boundary
 - - - Culverted Watercourse
 - Built up Area
- | Rivers | | Canals | |
|--------|------------------|--------|---|
| — A | Good | — | — |
| — B | | — | |
| — C | Fair | — | — |
| — D | | — | |
| — E | Poor | — | — |
| — F | Bad | — | — |
| - - - | Unclassified | — | — |
| - | Reach Boundaries | | |



**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 7**

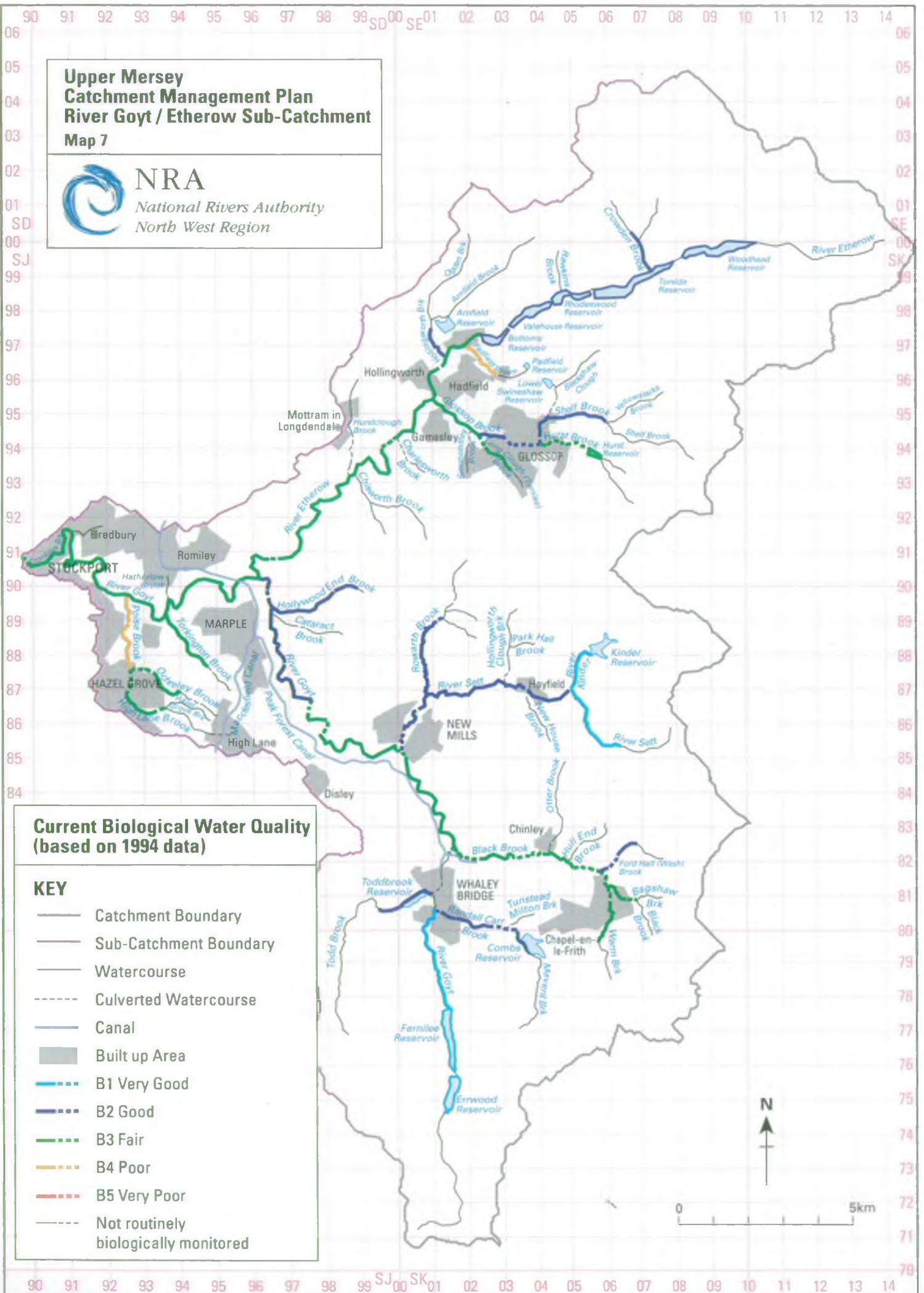


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**Current Biological Water Quality
(based on 1994 data)**

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- - - - Culverted Watercourse
- Canal
- Built up Area
- B1 Very Good
- B2 Good
- B3 Fair
- B4 Poor
- B5 Very Poor
- - - - Not routinely biologically monitored



2.6 WATER QUALITY (Maps 6 & 7 : General Chemistry Component)

Surveys of the chemical quality of the River Goyt and its tributaries carried out in 1992-1994 indicated the headwaters to be of good quality with a decline to fair downstream of the centres of population of Chapel-en-le-Frith, Whaley Bridge, New Mills and Glossop and into the more urban areas around Stockport. No reaches of poor or bad quality were recorded.

In general biological water quality in the upper reaches of the Goyt and Etherow catchment are good to very good. Occasional fluctuations in the water quality of the headwater have been noted and investigations involving factors such as acid stress and reservoir management are being considered. Invertebrate diversity is reduced and numbers of organic pollution tolerant species increases downstream of the centres of population.

Inputs to the watercourses in the more populated areas are from sewage treatment works, overflows on the sewerage system, trade effluent discharges direct to river and the surface run-off from roads and buildings.

Some watercourses in the more populated areas are locally affected by misconnections of foul drainage to storm water drains. Some of the headwaters are periodically acidic due to acidic rainfall and the natural run-off from peat bogs. The characteristic ochreous discolouration occurs in some watercourses due to elevated metals concentrations possibly resulting from past mining operations. In the more rural areas small sewage treatment facilities serving individual or small groups of houses can have a localised impact on water quality.

Surveys of the chemical quality of the stretches of canal within the catchment area carried out in 1992 - 1994 highlight apparent poor quality of the Buxworth Branch of the Peak Forest Canal and of the Peak Forest Canal itself from the junction with the Macclesfield Canal towards Ashton-under-Lyne. The other stretches of the Peak Forest and Macclesfield Canals were of fair or good quality. There are no current significant discharges to the canals within the catchment.

Map 6 illustrates the results of the surveys of the chemical quality of rivers and canals in the catchment. **Map 7** illustrates the results of the surveys of the biological quality of rivers in the catchment.

2.7 HYDROMETRIC NETWORK (Map 8 : Hydrometric Network)

In the Goyt catchment, there are three level monitoring stations, two on the River Goyt and one on the River Etherow. At Marple Bridge, the station records river levels over a compound Crump weir built in 1970, including river level for flood warning purposes. At Chadkirk, 4 km downstream of the confluence of the Goyt with the Etherow, the record starts from 1935. On the Etherow at Compstall, 13 km east of Stockport, the station records levels over a non-compound weir built in 1971, including river level for flood warning purposes.

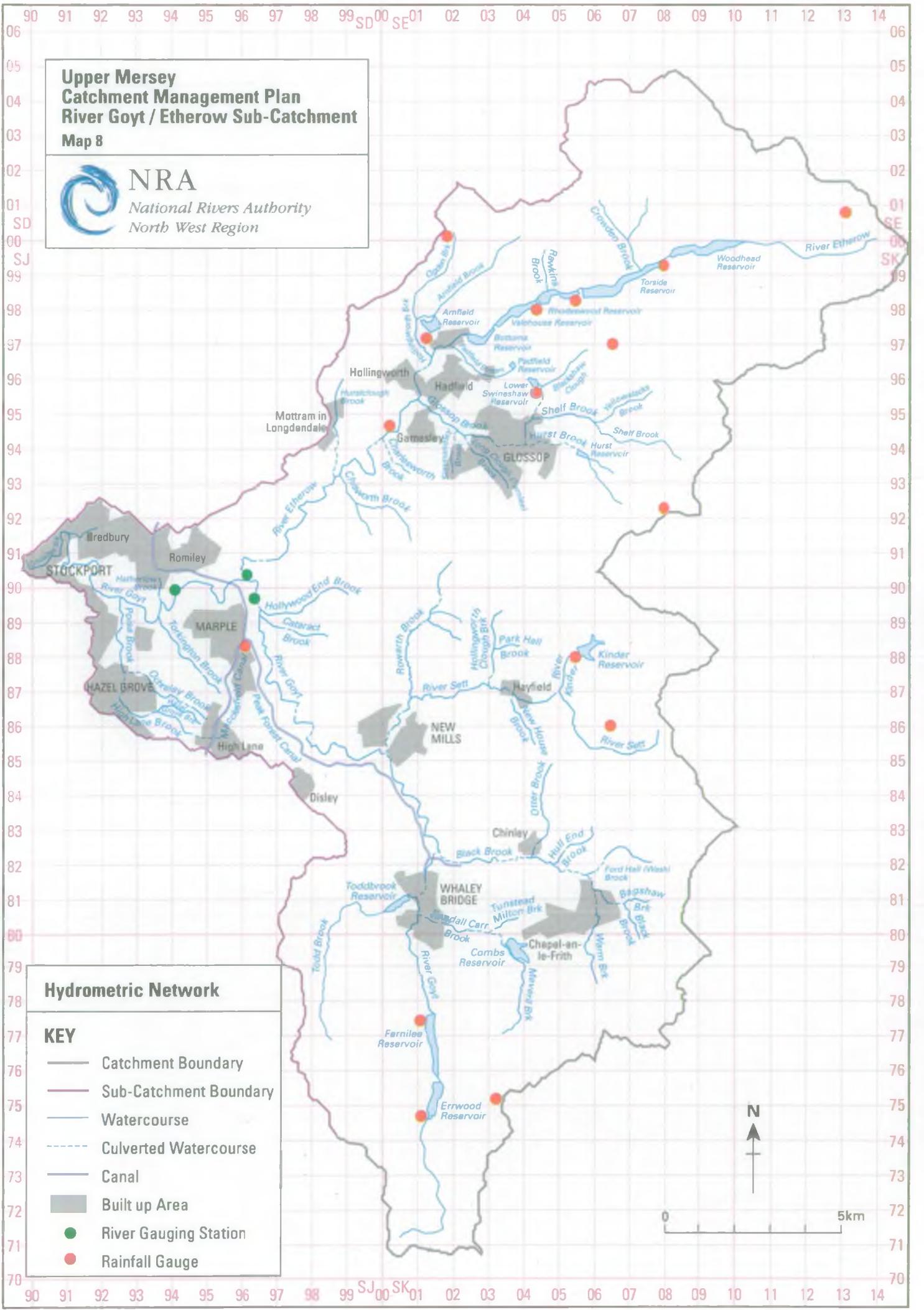
Upstream of the station at Marple Bridge, there are no other gauging stations and, therefore, there is a lack of hydrometric data. This applies to the upper reaches of the River Goyt, upstream of New Mill, the River Sett and Black Brook. On Black Brook, temporary water level loggers were installed for a short period in 1994/95, in response to a requirement for information for the Flood Defence Feasibility Study. If sufficient demand exists at any of the three sites, then a permanent gauging station could be constructed (Issue SS6).

Readings from 16 raingauge sites within the Goyt and Etherow catchments are received by the NRA. Of these, 15 are NRA monitored sites and an additional one is from a private observer. Three of the NRA sites are Tipping Bucket Rain Gauges (TBR) measuring daily totals and intensities. At all three sites, there are also standard rain gauges recording daily totals only. The locations of these rain gauges are:

- Arnfield Reservoir (TBR)
- Boar Flat
- Clough Edge
- Glossop Sewage Works
- Goytshead
- Hayfield Kinder Filters (TBR)
- Longhill
- Longside Moss
- Marple (Private)
- Oakenclough
- Oldfield
- Rhodeswood Reservoir
- Snake Road
- Swineshaw
- Torside Reservoir
- Woodhead Reservoir (TBR)

In winter, precipitation in the upland areas of the catchment often falls as snow. Snow melt, can make a significant contribution to flows in the watercourses in this catchment. At present, there is no mechanism for the measurement of snow melt in the catchment (Issue SCW5).

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 8**



Hydrometric Network

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- - - Culverted Watercourse
- Canal
- Built up Area
- River Gauging Station
- Rainfall Gauge



0 5km

3 CATCHMENT USES AND TARGETS

3.1 WATER QUALITY

Water quality plays a significant role in determining the variety of uses that a catchment can support. This section explains the criteria used to assess water quality within the catchment, before looking at the uses in detail.

3.1.2 NRA Monitoring Duties

The NRA has a duty to monitor the extent of pollution in controlled waters. Controlled waters include rivers, streams, ditches, lakes, groundwaters, estuaries and coastal waters. This is achieved by chemical, biological and microbiological sampling programmes. Water quality information is available to the public and held on the Water Resources Act Register, at the NRA North West Regional Office, Richard Fairclough House, Knutsford Road, Warrington.

3.1.3 Water Quality Targets

Targets relating to water quality can be categorised as relating to domestic UK classification schemes or arising from EC Directives.

3.1.4 Water Quality Classification

River Quality Objectives

The NRA has strategic targets known as River Quality Objectives (RQOs) which provide a basis for water quality management decisions. In the past the National Water Council (NWC) classification scheme for water quality has been a fundamental element of RQOs. This is now being superseded by new classification schemes, prescribing standards for specific uses. The first set of standards to be developed, in the River Ecosystem scheme, relates to the chemical quality requirements of different types of aquatic ecosystem. Details of the standards applying are given in **Appendix 3**.

River Ecosystem RQOs, for the rivers and canals of this catchment, are proposed here for the first time. Objectives under this scheme will ultimately become statutory targets, when notices are served by the Secretary of State for the Environment, giving them legal status. Although a formal public consultation will take place before the objectives become statutory, **views on the proposals are sought at this stage.**

The lengths of river and canal to which the objectives have been applied are largely the same as previously used for the NWC system of classification and objectives.

It is also possible to relate the classes of the previous NWC objectives to the River Ecosystem scheme. This has been considered in the assessment of the proposed River Ecosystem objectives in addition to what the water quality is currently like and how this is predicted to change. Changes in water quality could arise, for example, due to improvements in consented discharges, improvements to farm drainage or changes in land use. Unless improvements are known to be in hand consented discharges are assumed to contain the maximum permitted pollutant load.

Objectives proposed for non-statutory RQOs and ultimately Statutory Water Quality Objectives (SWQOs) will be achievable within 10 years. The dates given for compliance will become part of the statutory obligation. In predicting improvements it has only been possible therefore, to consider expenditure which is firmly committed. The recent National document relating to water company expenditure, over the next five years, are of particular significance here.

It is envisaged that it will be possible to review SWQOs after 5 years.

For the purposes of this plan long-term, River Ecosystem RQOs have also been considered. These are the achievable aspirations for the catchment. Achievement of the proposed long-term RQOs for some stretches may take longer than 10 years, or require expenditure not available before then. No dates have been ascribed to these.

The proposed short-term and long-term River Ecosystem RQOs for the classified lengths of the rivers and canals of the catchment are shown in **Appendix 4**.

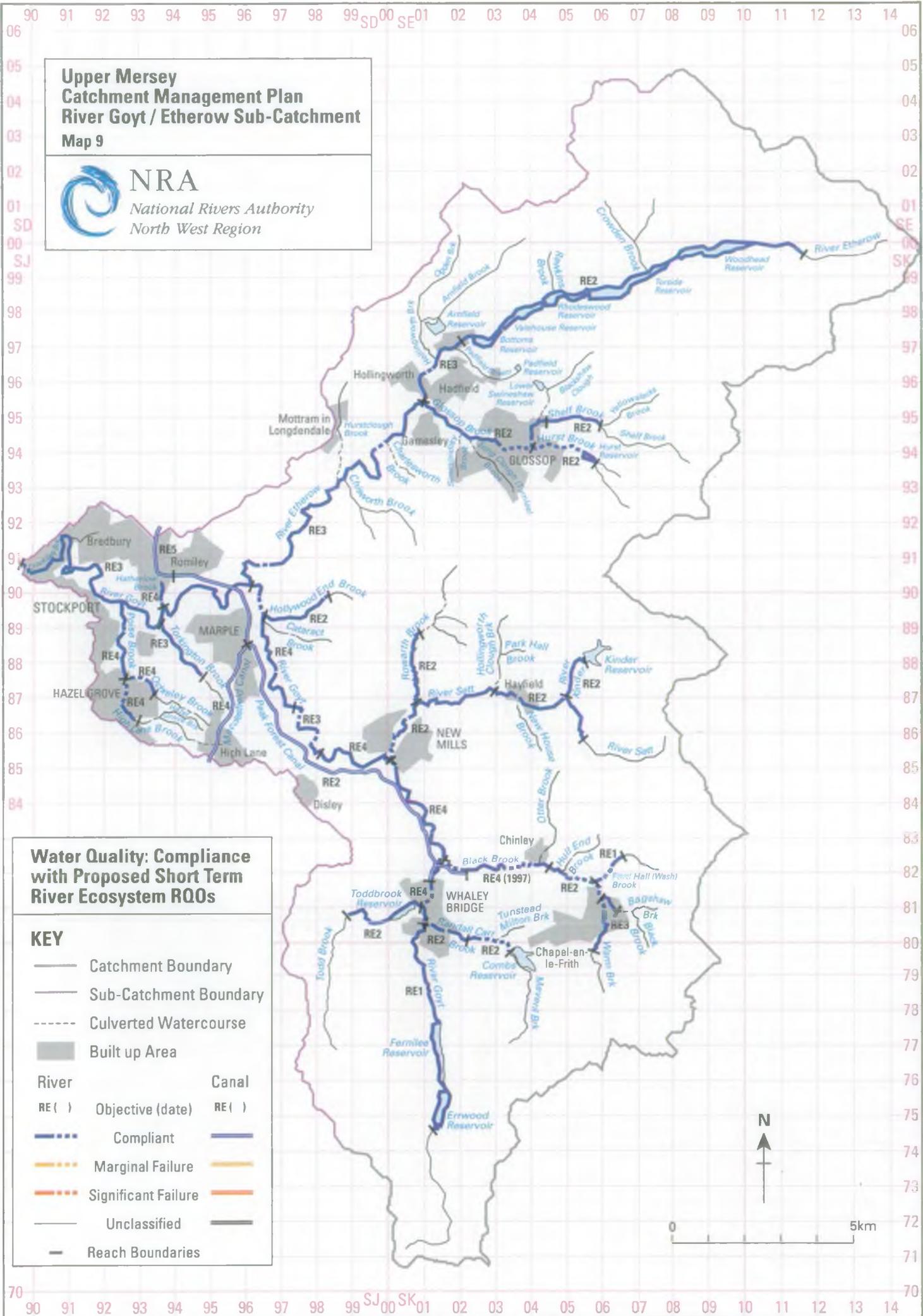
Map 9 shows the current state of compliance with the proposed short term River Ecosystem RQOs. **Map 10** shows the current state of compliance with the proposed long term River Ecosystem RQOs. The proposed objectives themselves are also recorded here. For the proposed current objectives, where no date is indicated this is because the objective applies with immediate effect.

Statistical procedures have been used to assess whether samples collected for particular stretches are within the appropriate chemical standards. Failures have been distinguished as either marginal or significant.

The definition of the River Ecosystem classes, in chemical terms, can be equated with the following broad descriptions, with particular reference to the fish population that could be expected to be supported by the ecosystem.

- 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)
- Class RE5:** Water of poor quality (which is likely to limit coarse fish populations)
- No Class:** Water of bad quality (in which fish are unlikely to be present)

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 9**



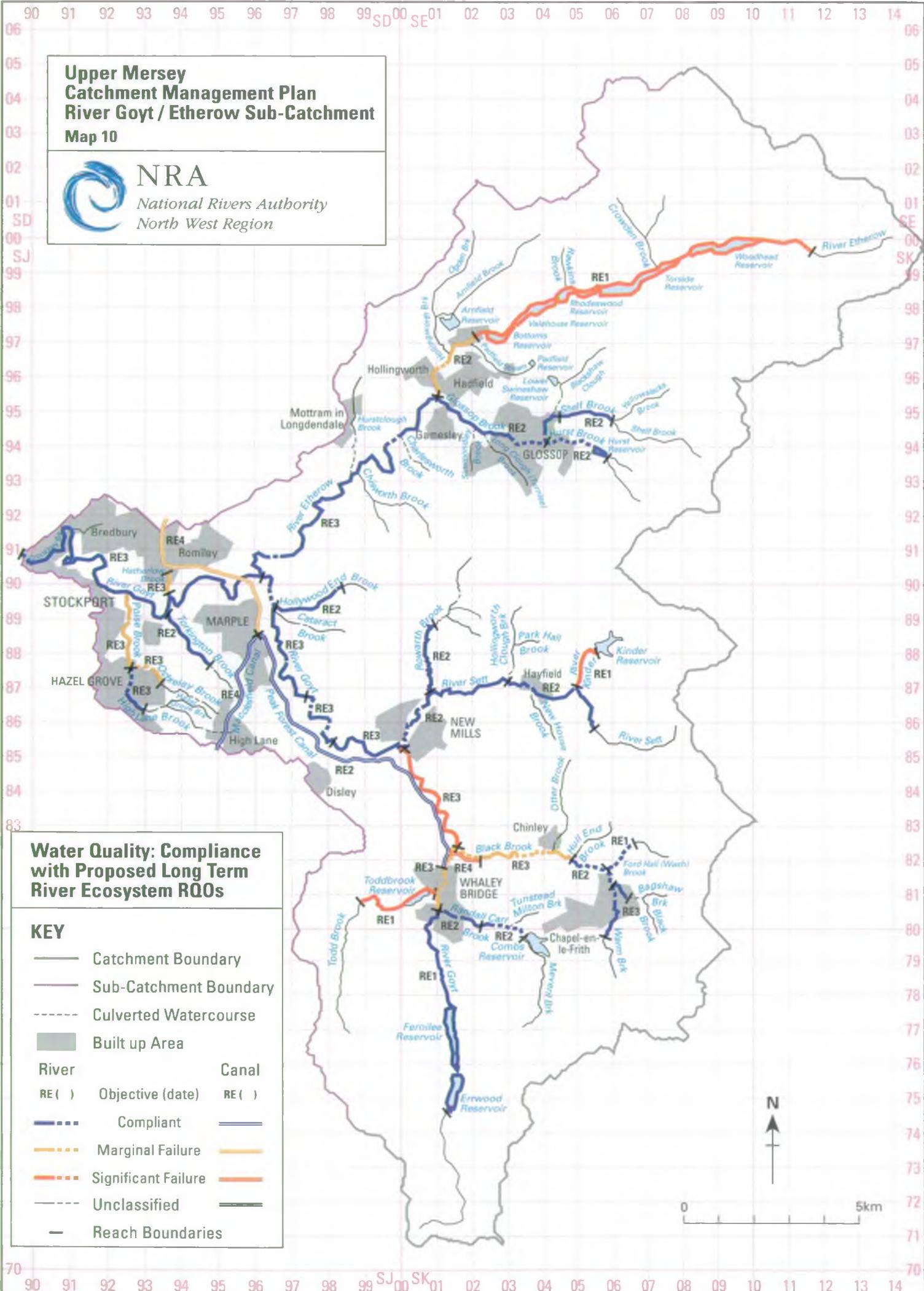
Water Quality: Compliance with Proposed Short Term River Ecosystem RQOs

KEY	
	Catchment Boundary
	Sub-Catchment Boundary
	Culverted Watercourse
	Built up Area
River	Canal
RE ()	Objective (date)
	Compliant
	Marginal Failure
	Significant Failure
	Unclassified
	Reach Boundaries

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 10**



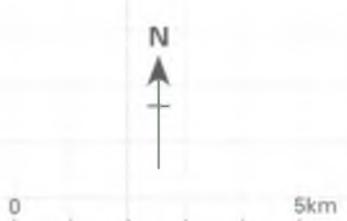
NRA
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North West Region



**Water Quality: Compliance
with Proposed Long Term
River Ecosystem RQOs**

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- - - Culverted Watercourse
- Built up Area
- River
- RE () Objective (date)
- Compliant
- Marginal Failure
- Significant Failure
- Unclassified
- Reach Boundaries
- Canal
- RE ()



Biological Water Quality Classification

The input of biological data to the current catchment management process is essential to support the issues raised on the strength of chemical data and also to highlight those issues which may only be indicated by assessing the composition of the invertebrate community.

Biological reporting is seen as being a vital ingredient in the routine assessment of water quality problems across the catchment and as a useful tool when tracing specific pollution problems.

The biological water quality classification method used in this report depends on the identification of freshwater invertebrate specimens to family level. Each family has a biological score allocated to it, the value being related to the tolerance of the whole family to pollution. Pollution sensitive species receive the highest score, up to a maximum of ten for some stoneflies, and pollution tolerant species such as worms are given the lowest value of one. Abundances are also recorded to make an assessment of the dominant invertebrates in the sample.

A number of biological indices are applied to the invertebrate information collected for each length of river and one of five biological classes listed below is assigned.

Biological class B1 - Very Good Biological Quality

The fauna recorded is extremely diverse and dominated by a variety of stoneflies (Plecoptera) and mayflies (Ephemeroptera, not including the family Baetidae). Such groups require high levels of oxygen (>80%). The dominant invertebrates found are generally intolerant of pollution, particularly ammonia and organic pollution, preferring clean, well oxygenated streams. Some stonefly species are able to tolerate raised acidity levels, though most mayfly species are unable to tolerate this condition. Where such a diverse fauna is found, visible evidence of pollution is very rare.

Biological class B2 - Good Biological Quality

The indicative fauna is diverse and typically dominated by mayflies and caddis fly larvae (Trichoptera) with stoneflies in lower abundances than found in biological class B1. A few more pollution tolerant species such as shrimps are found, though the fauna still requires above average oxygen levels (>60%). The fauna will tolerate low ammonia levels and very mild organic pollution. Visible evidence of pollution is usually absent.

Caddis fly larvae tend to be less sensitive to organic pollution than stoneflies and mayflies. Shrimps (Gammaridae) are reasonably tolerant of mildly enriched conditions but will not tolerate conditions of increased acidity. Sometimes shrimps will form communities adapted to high levels of heavy metals.

Biological class B3 - Fair Biological Quality

The fauna is moderately diverse but typically dominated by more pollution tolerant families of mayflies (Baetidae), caddis fly larvae and shrimps. Pollution tolerant water hoglice (Asellidae) are frequently present, together with significant numbers of worms and midge larvae. Stoneflies are typically absent. Oxygen saturation (>40%) is typically sufficient to support pollution tolerant mayflies. Visible evidence of pollution may be present.

Biological class B4 - Poor Biological Quality

This class is indicated by a restricted fauna composed of pollution tolerant species. Water hoglice, worms and chironomids (midge larvae) are frequently present, whereas pollution sensitive stoneflies are absent. Water hoglice are fairly tolerant of high salinities, low pH and high metal concentrations. Shrimps and pollution tolerant mayfly species (Baetidae family) are only occasionally recorded. The fauna is able to tolerate low oxygen levels (>10%) and occasionally stagnant, anaerobic conditions, which may be associated with significant organic pollution or mild toxicity. Visible evidence of pollution is typically present.

Biological class B5 - Very Poor Biological Quality

This class is indicated by a very restricted fauna tolerant of severely polluted conditions. A macroinvertebrate fauna may in fact be absent altogether. Only species capable of utilising very low oxygen levels are found, for example, chironomids and worms. The fauna may be composed of very low abundances of a few species, indicating toxic conditions, or very high numbers of pollution tolerant species such as red midge larvae (bloodworms) or worms, indicative of gross organic pollution. Visible evidence of pollution is very common.

High numbers of red midge larvae (bloodworms) are particularly indicative of pollution by sewage or farm effluent. Worms are also tolerant of organic pollution.

The proposed Long-Term Objectives for Biological Water Quality for the classified lengths of the catchment are also listed in **Appendix 4** and shown on **Map 11**. Compliance with the proposed objectives is illustrated on **Map 12**.

3.1.5 EC Directives

Four Directives issued by the EC have implications for water quality in the Goyt catchment.

Directive on Dangerous Substances in Water

The Directive provides a framework for measures to control pollution, caused by discharges of certain dangerous substances sub-divided under List I and List II. Member States are required to take steps to eliminate pollution caused by List I substances and reduce pollution by List II substances.

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 12**

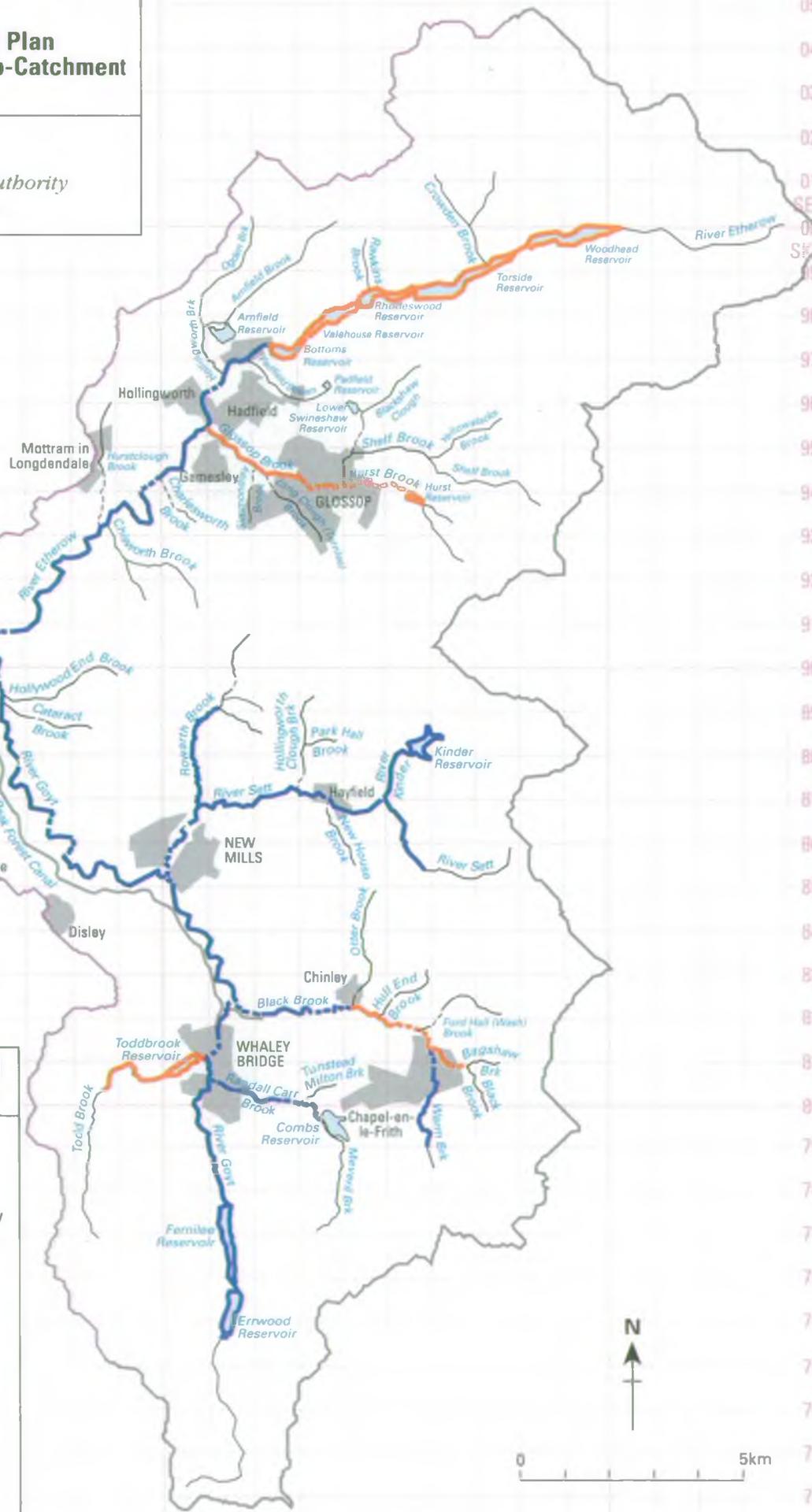


NRA
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North West Region

**Compliance With Biological
Long-Term Objectives**

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- - - Culverted Watercourse
- Canal
- Built up Area
- Compliance
- Failure
- - - Not Routinely Biologically Monitored



In the UK standards have been established for concentrations of these substances in watercourses. Limits for discharges containing the substances have been set accordingly, with regard to the dilution available.

There is one river monitoring point for dangerous substances within the Goyt catchment. This is on the River Etherow at Broadbottom as shown on **Map 13**.

The most recent reports made to the Department of the Environment on compliance with Environmental Quality Standards for List I and List II substances were on data for the calendar year 1994.

Directive on Urban Wastewater Treatment

The Directive specifies requirements for the collection and treatment of industrial and domestic wastewaters at sewage treatment works and for treatment of wastewater from certain sectors of industry prior to direct discharge to watercourse.

Most significant inland sewage treatment works already comply with the basic requirements relating to treatment.

However, the requirement that collecting systems (the sewerage system) shall be designed, constructed and maintained in accordance with best available technology not entailing excessive costs, specifically regarding the limitation of pollution of receiving waters due to storm (and emergency) overflows, presents very significant objectives to be met. Over 80 overflows have been identified within the Goyt catchment. The NRA undertakes reviews of performance of overflows and is involved in the prioritisation of unsatisfactory overflows for inclusion in the capital programme of NWW Ltd

With regard to direct discharges from the specified sectors of industry, standards for the appropriate level of treatment are being developed. It is unlikely that any of the direct discharges of industrial effluent, within the Goyt catchment, will be affected by this requirement.

Directive on Water Quality for Freshwater Fish

The Directive sets Environmental Quality Standards (EQSs) for stretches of freshwater designated as suitable for either salmonids (salmon and trout species) or cyprinids (coarse fish species).

There are nine designated river stretches within the Goyt catchment. Eight are of salmonid designation. In addition there are two stretches of canal within the catchment area designated as cyprinid fisheries. The designated stretches are shown on **Map 13**.

The most recent reports on compliance made to the Department of the Environment were on the basis of data from the calendar year 1994.

Directive on Abstraction of Surface Water for Drinking

Amongst other requirements this Directive specifies standards for the quality of water abstracted for use as drinking water.

Six abstractions have been identified in the Goyt catchment for the purposes of this Directive and these are shown on **Map 13**.

The most recent reports on compliance made to the Department of the Environment were on the basis of data from the calendar year 1994.

3.1.6 Asset Management Plan 2 (AMP2)

The Asset Management Plan, of which this is the second, is essentially the Water Companies programme of expenditure and investment for the ten year period between 1995 and 2005.

The NRA is involved in setting priorities for work necessary for environmental improvements. The environmental related work for the first 5 years of the programme has essentially been confirmed. However, although schemes have been identified for the second 5 year period, between the years 2000 and 2005, they are still open to negotiation, and reprioritisation, according to what are deemed to be the most environmentally beneficial projects.

AMP2 programme 1995 -2000

The only improvement scheme identified for the first five years of the AMP2 process within the Goyt catchment relates to the following unsatisfactory sewer overflow.

Catchment	NWW Reference	Stream	Grid reference	Location
Goyt/ Etherow	STK0100	Torkington Bk	SJ93718888	Dooley Lane, Marple

AMP2 programme 2000 - 2005

None of the improvement schemes currently identified for inclusion in the second five years of the AMP2 process are within the Goyt catchment.

3.2 EFFLUENT DISPOSAL

3.2.1 General

Domestic and industrial effluents may be discharged continuously or intermittently to the river system.

Continuous Effluents

Fully treated effluent from sewage treatment works and trade effluent treatment plants are typically continuous discharges.

The more significant sewage treatment works are almost exclusively operated by the Water Services Companies (WSCs). In the Goyt catchment this is mainly North West Water Ltd. although a small area is covered by Severn Trent Water Ltd. Such sewage works may receive both domestic and industrial waste. Houses and other premises, remote from the established sewerage network, may use an individual sewage treatment plant with a discharge to a watercourse, as an alternative to septic tank or cess pit, as a means of disposal of foul drainage.

Industrial concerns may also opt to treat their trade waste at their own treatment facility with a discharge to a watercourse, rather than discharge to sewer.

The quality of such continuous effluents is controlled by consents.

Intermittent Effluents

The most significant category of intermittent effluent is that from storm overflows on the sewerage network. Sewage effluent may also be discharged intermittently from the sewerage network in the event of emergency at pumping stations. Both these types of discharge are the responsibility of the water companies and the circumstances in which they are permitted to occur are controlled in consents.

Unfortunately, significant amounts of sewage debris, can often be seen on the bed and banks, over substantial lengths of watercourse, throughout the catchment. Such debris is released from the sewers through overflows. Properly designed overflows can reduce this.

Another category of intermittent effluent arises as a consequence of numerous storm water drains in the catchment being contaminated with domestic foul water from sinks, washing machines etc. Often such appliances are incorrectly drained to the storm water drains, and not the foul sewer as they should be. Although the impact is localised it is widespread throughout the catchment and can be both difficult and time consuming to trace.

A further category of intermittent effluent is the surface water run-off from urban areas.

3.2.2 Local Perspective

Continuous Effluents

There are 12 North West Water Ltd sewage treatment works within the catchment. There is also one operated by Severn Trent Water Ltd.

There are also a number of small treatment plants operated by others.

There are currently ten industrial discharges direct to river. The locations of these discharges are shown on **Map 14**.

Intermittent Effluents

There are over 80 identified storm and emergency sewer overflows within the Goyt catchment.

The locations of the identified storm and emergency sewer overflows within the catchment are shown on **Map 14**.

Surface run-off from the urban areas within the catchment is a significant intermittent effluent.

3.2.3 Environmental Objectives

- There is a need to control continuous and intermittent discharges to achieve water quality targets for the catchment.

3.2.4 Environmental Requirements

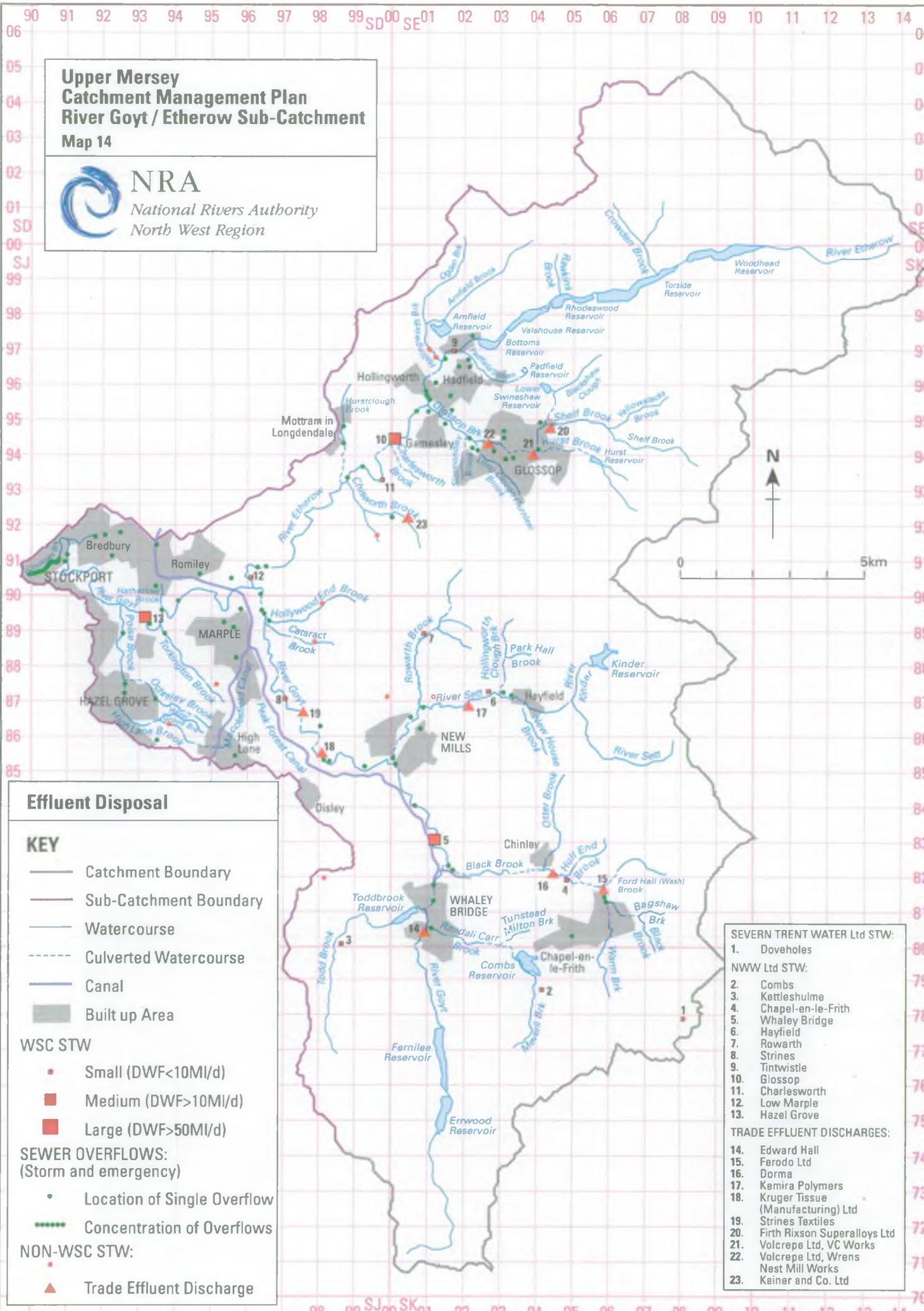
Water Quality

- There is a requirement for no deterioration in water quality upstream of discharges as this would increase their impact on the river.

Water Quantity

- There should be no significant reduction in flows upstream of discharges as this would increase their impact on the river.

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 14**



Effluent Disposal

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- - - Culverted Watercourse
- Canal
- Built up Area

WSC STW

- Small (DWF<10MI/d)
- Medium (DWF>10MI/d)
- Large (DWF>50MI/d)

**SEWER OVERFLOWS:
(Storm and emergency)**

- Location of Single Overflow
- Concentration of Overflows

NON-WSC STW:

- ▲ Trade Effluent Discharge

SEVERN TRENT WATER Ltd STW:

- 1. Doveholes
- NWW Ltd STW:**
- 2. Combs
 - 3. Kettleholme
 - 4. Chapel-en-le-Frith
 - 5. Whaley Bridge
 - 6. Hayfield
 - 7. Rowarth
 - 8. Strines
 - 9. Tintwistle
 - 10. Glossop
 - 11. Charlesworth
 - 12. Low Marple
 - 13. Hazel Grove

TRADE EFFLUENT DISCHARGES:

- 14. Edward Hall
- 15. Ferodo Ltd
- 16. Dorma
- 17. Kemira Polymers
- 18. Kruger Tissue (Manufacturing) Ltd
- 19. Strines Textiles
- 20. Firth Rixson Superalloys Ltd
- 21. Volcrepe Ltd, VC Works
- 22. Volcrepe Ltd, Wrens Nest Mill Works
- 23. Keiner and Co. Ltd

3.3 WATER ABSTRACTION - SURFACE WATER/GROUNDWATER

(Map 15 : Licensed Abstractions : Industrial and Agricultural)

3.3.1 Industrial

Within the catchment there are 38 licensed abstractions for industrial purposes. Of these 28 are from surface water sources.

In terms of surface water, there has generally been sufficient resources to meet industrial demand. The exception to this being Shelf Brook at Glossop where abstraction can cause problems during times of low flow. (Issue SCW4).

In respect of groundwater abstractions, the major Permo-Triassic sandstone aquifer is exploited to the west of the catchment. The groundwater resources associated with this aquifer are heavily committed to existing users in adjacent catchments and as such, any new licence applications would need to be considered on an individual basis.

3.3.2 General Agriculture

The minor aquifers formed by the sandstones and limestones of the Carboniferous era have been exploited to provide private agricultural water supplies. The availability of groundwater from these minor aquifers is very site specific, depending on the local hydrogeology and topography. There are 84 licensed agricultural abstractions, all from groundwater sources, of which 74 are from springs. The majority of these abstractions occur in the upper reaches of the catchment. There are also surface sources used within these upper reaches which are exempt from licensing requirements.

Although these agricultural abstractions account for the greatest number of licences within the catchment by far, as a demand on the total resources, they are negligible.

3.3.3 Spray Irrigation

There are four licensed abstractions for spray irrigation within the catchment, three of these being for golf course irrigation.

As a demand on the total resources of the catchment, these abstractions are negligible.

3.3.4 Environmental Objectives

The overall aim of water resource management is to ensure an appropriate balance between the needs of the environment and protecting existing abstractors and the demand for additional sources of water supply. This is achieved through the abstraction licensing process and the routine monitoring of all sources.

3.4 POTABLE (DRINKING) WATER SUPPLY (Map 16 : Licensed Abstractions : Public Supply)

3.4.1 Surface Sources

There are six Water Abstraction Licences authorising water to be abstracted for Public Water Supply within the catchment. The largest of these is from the Longendale system, where Woodhead and Torside Reservoirs act as the first two collecting reservoirs within the system, water being drawn off from Rhodeswood and Arnfield Reservoirs for supply purposes. Within this system, Bottoms and Valehouse Reservoirs act as compensation reservoirs.

The other five licences cover Kinder, Fernilee and Errwood, Swineshaw reservoir, Torside Goyt and Hurst reservoirs. These reservoirs are subject to statutory compensation water discharges.

All the reservoir compensation flows throughout the catchment are to be reviewed.

3.4.2 Groundwater Sources

There are two licensed groundwater sources authorising use for Public Water Supply, although one of these is not currently in use.

The minor aquifers formed by the sandstones and limestones of the Carboniferous era have been exploited to provide private domestic supplies, particularly in rural areas remote from the mains system. The sandstones may also give rise to springs and discharges to surface waters. The availability of groundwater from these minor aquifers is very site specific, depending on the local hydrogeology and topography. The majority of these abstractions will be exempt from licensing requirements. However, there are 13 licences within the catchment authorising abstraction for various private water supplies. These include public houses, industrial premises and sources serving a number of properties.

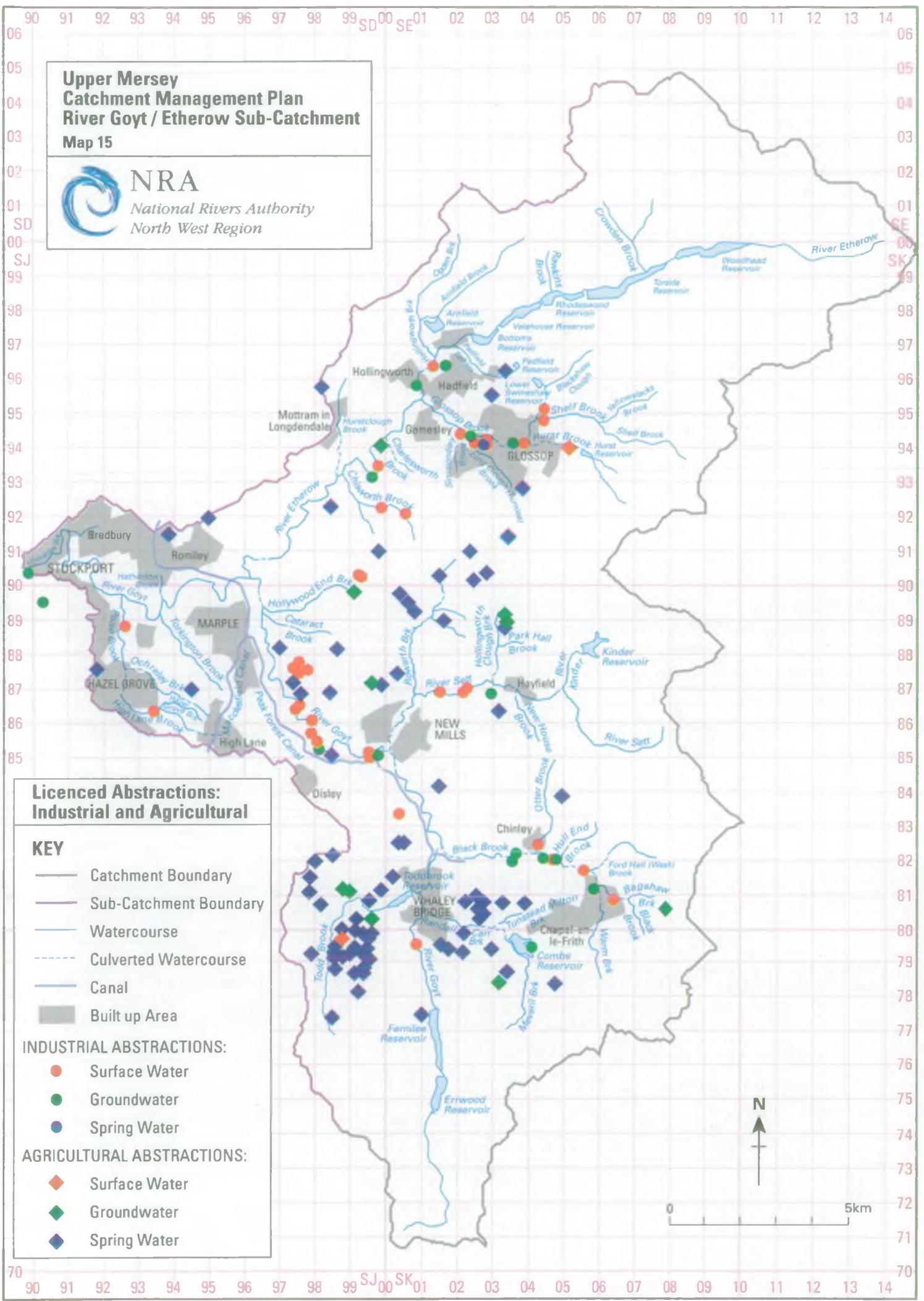
3.4.3 Groundwater Quality

The major Permo-Triassic sandstone aquifer generally contains high quality groundwater. However, it is potentially vulnerable to contamination from past and present land usage, particularly in urban areas where drift cover is thin or absent.

Groundwater associated with Carboniferous Coal Measure sandstones are typically high in iron. This can also be acute in groundwater contained in old mine workings. In addition, mine water often have elevated levels of chloride and sulphide. Similarly, elevated levels of iron may be present in the Millstone Grit Series sandstones.

Problems have occurred within the catchment resulting from agricultural discharges leaking silage, slurry stores and sludge disposal to land, on those parts of the catchment underlain by fissured limestone and old coal workings.

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 15**



**Licenced Abstractions:
Industrial and Agricultural**

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- Culverted Watercourse
- Canal
- Built up Area

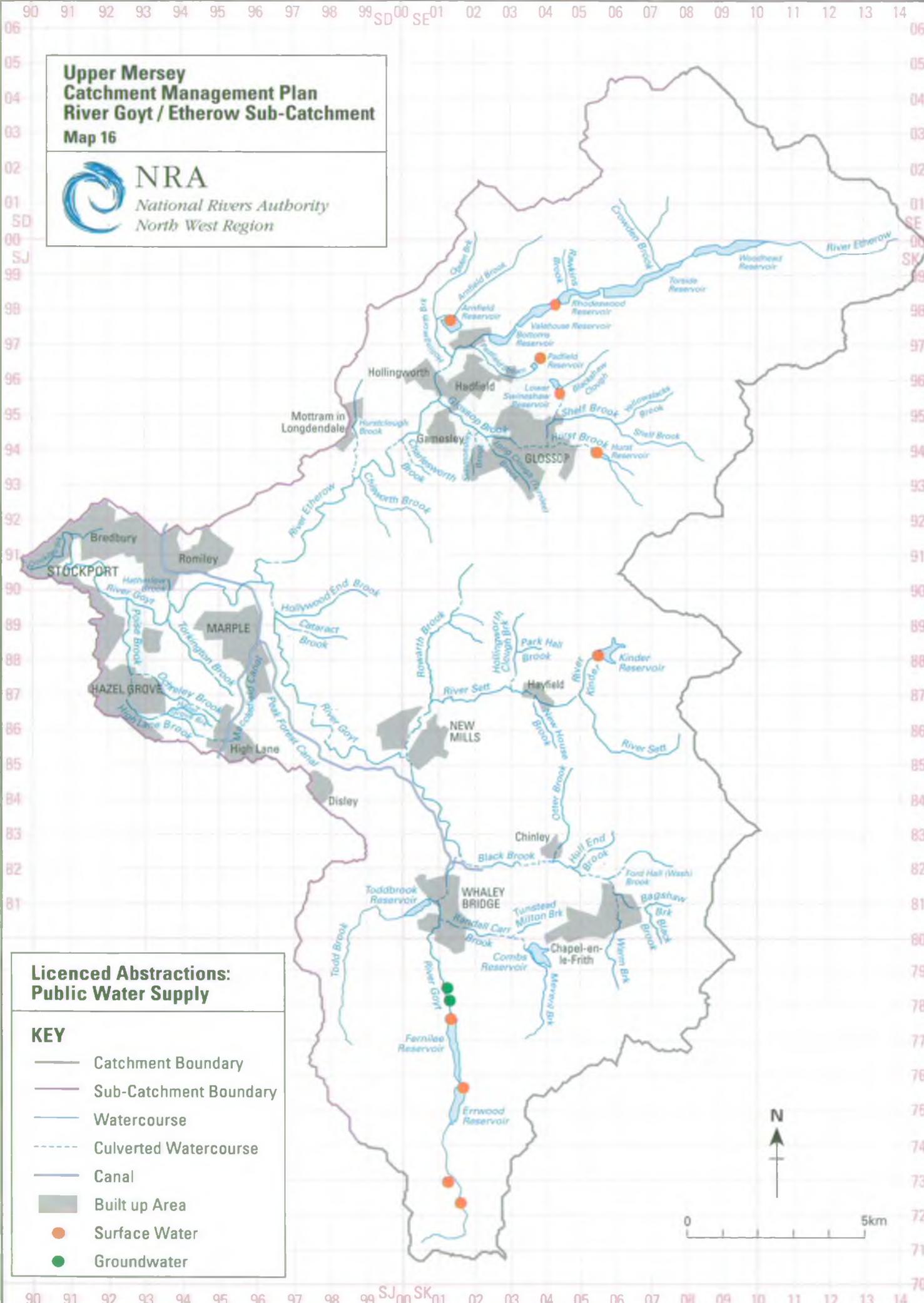
INDUSTRIAL ABSTRACTIONS:

- Surface Water
- Groundwater
- Spring Water

AGRICULTURAL ABSTRACTIONS:

- Surface Water
- Groundwater
- Spring Water

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 16**



**Licenced Abstractions:
Public Water Supply**

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- - - Culverted Watercourse
- Canal
- Built up Area
- Surface Water
- Groundwater



3.5 GROUNDWATER PROTECTION

There is a need to protect both groundwater resources in general and sources in particular from the effects of mans activities within the Goyt catchment.

The NRA takes a region wide approach to groundwater protection, as set out in the Upper Mersey Catchment Management Plan and in more detail in the NRA Document "Policy and Practice for the protection of Groundwater".

Source protection zones have not yet been prepared for the two public supply groundwater sources within the Goyt catchment. Furthermore, there are a number of licensed and unlicensed sources present. These should be assessed on an individual basis.

3.6 CATCHMENT DRAINAGE - FLOODING AND FLOOD ALLEVIATION

3.6.1 General

There is a clear requirement for the provision of effective defence for people and property against flooding from rivers and sea. Normally flooding is a result of extreme weather conditions, such as high winds or very heavy rainfall.

It is clear that different types of land use, for example, urban areas and pasture land, require different levels of protection.

3.6.2 Local Perspective

The rain falling on the hills of the Peak District runs off into several steep watercourses, which combine to form the River Goyt and its major tributary, the River Etherow. Many of these watercourses react quickly to rainfall and extensive property damage in villages and towns, besides the watercourses, has often occurred due to flooding. Improvements to the standard of flood protection on the River Etherow in Woolley Bridge and Black Brook in Chapel-en-le-Frith are programmed to commence within the next three years. Nevertheless, some urban areas are still at risk from severe flood events. The NRA will continue to promote and construct flood alleviation schemes, where they can be proved to be economically viable. Whilst schemes for the protection of property can be devised, there is always the possibility of an event more severe than design standard, which would cause some flooding to property. Thus, although the risk of flooding can be reduced, it can never be completely avoided.

3.6.3 Land Drainage Consents

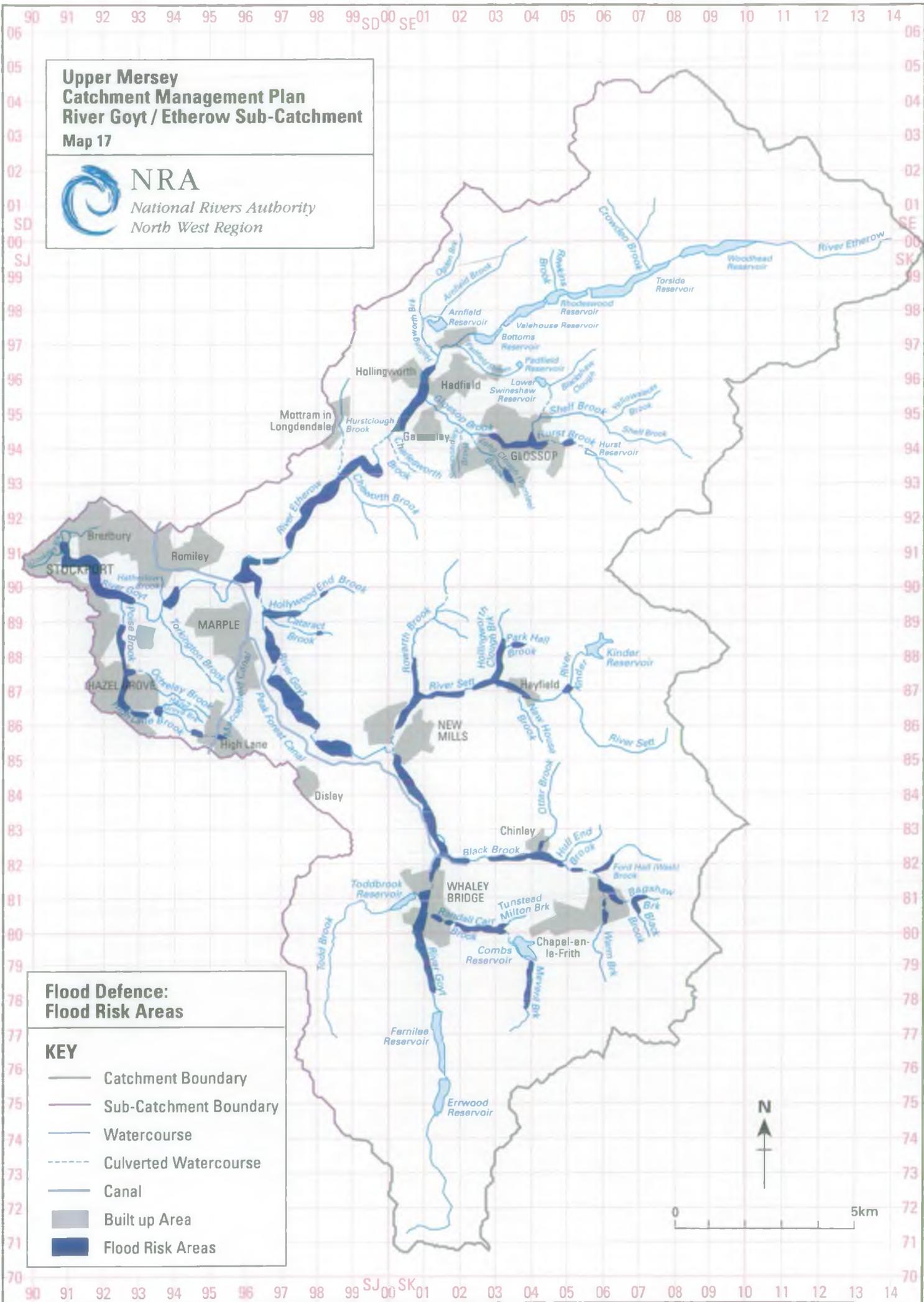
For certain works which might be affect the Regions flood defences, the consent of the NRA may be required.

On designated Main Rivers an NRA consent must be obtained for carrying out work in, on, under or over watercourses or their banks and within certain distances from the riverside. The NRA will use these powers to control works affecting drainage interests in order to maintain adequate flood protection. In advising and issuing consents the NRA takes into account the potential impact of a proposal on the natural environment. A proposal which has a negative impact on the environment for example, extensive culverting, are unlikely to obtain consent. Local authorities are also required to seek the consent of the NRA before carrying out any works to a non Main River watercourse.

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 17**



NRA
National Rivers Authority
North West Region



**Flood Defence:
Flood Risk Areas**

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- - - Culverted Watercourse
- Canal
- Built up Area
- Flood Risk Areas



0 5km

3.6.4 Flood Warning (Map 17 : Flood Risk Areas)

Flood Warning Zones

There is a formal flood warning zone at Woolley Bridge on the River Etherow (zone D1). Flood warnings, are passed to Derbyshire Police, who then pass on the warnings to the local authority and various properties in the Woolley Bridge area. One of these properties, the Spread Eagle Hotel has a river level indicator within the building.

Regional Telemetry System

There are five water level gauges in the catchment connected to the regional telemetry system. There is a water level gauge on the Etherow at Woolley Bridge, which gives an indication of high water levels for the Woolley Bridge formal flood warning zone. Upstream of the flood zone, further information is provided by two water level gauges, which indicate the level at the outflow from Bottoms Reservoir and the water level in the reservoir itself.

The other two water level gauge telemetry stations in the catchment, Compstall on the Etherow and Marple Bridge on the Goyt, are both approximately 10 km upstream of its confluence of the Goyt with the River Tame. These stations act as an early warning for the River Mersey formal flood warning zone.

There is one rain gauge in the catchment at Swineshaw connected to the regional telemetry system.

Historic Flood Events

There are 45 locations in the catchment where levels are taken, following high water in the river. These are known as flood pins, with 11 on the River Goyt and 7 on the River Etherow. There are a further 5 flood pins on each of Glossop Brook, Black Brook and the River Sett and 12 more on minor tributaries, Ford Hall Brook, Hollingworth Clough Brook, Hull End Brook, New House Farm Brook, Randall Carr Brook, Rowarth Brook, and Warm Brook.

On the River Goyt and its upper tributaries, Black Brook and the River Sett, the highest water levels since 1968 were recorded in July 1973 (2.1m above dry weather flow at Marple Bridge Weir). Records go back further on the River Etherow to 1965 and the highest water levels on that catchment occurred in December 1965 (2.2m above dry weather flow at Woolley Bridge).

On Glossop Brook, where the record is shorter, since 1978, the highest water levels occurred in September 1980. More recently, over the whole of the River Goyt and River Etherow catchments, high water levels were recorded in December 1991.

3.6.5 Operational Maintenance (Map 18 : State of the Catchment)

The responsibility for river maintenance and the structural integrity of embankments of any watercourse, within their ownership, principally rests with the riverside landowner, whose ownership as a general rule extends to the centre line of any such river.

Planned Maintenance

An annual programme of planned maintenance is undertaken. This includes hand maintenance on smaller watercourses, such as weed and grass cutting. Mechanical maintenance of flood banks by flailing takes place several times a year. Where silt and shoals accumulate, their removal is generally programmed to take place every few years. Larger individual items of work, such as repairs to flood banks are termed as heavy maintenance and are added to the programme when the need arises.

Maintenance Operations (Map 19 : River Corridor Land Use Plan)

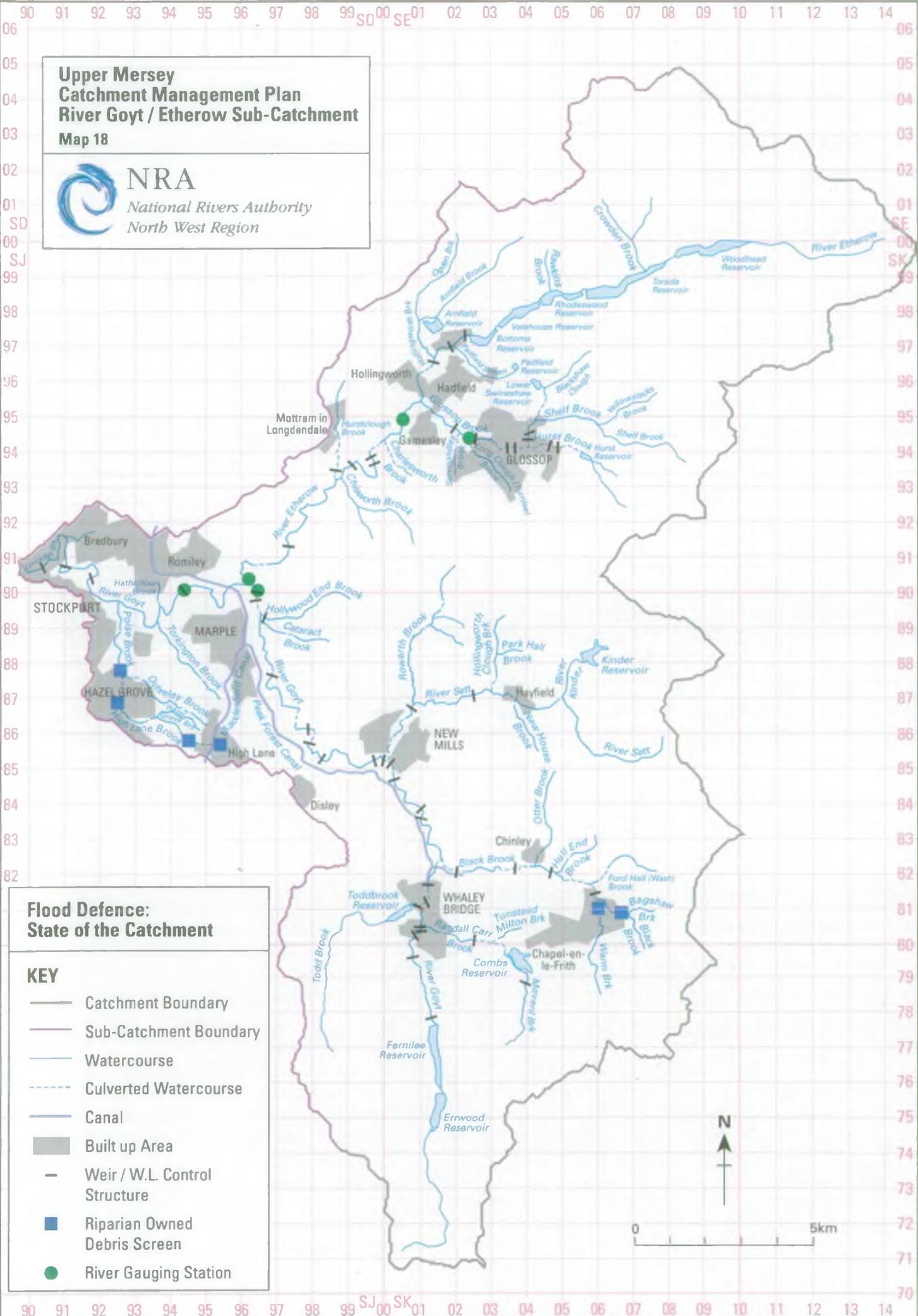
A particular problem occurs in this catchment with trees and bushes growing through river bank walls. Not only do these damage the integrity of the walls themselves, which eventually collapse causing debris problems, but also during high flows, they are often swept downstream causing blockage problems and damage to the flood banks on the River Mersey. A maintenance programme to solve this problem is necessary (**Issue SCW1**).

In the lower reaches of the River Goyt in Stockport maintenance is undertaken to remove shoaling and debris. Elsewhere, limited maintenance of the channel to remove debris and shoaling is undertaken and consequently shoals develop, which are colonised by trees and bushes. In flood flows, they collect debris causing blockages and therefore, reduce the standard of flood protection (**Issue SCW2**). Furthermore, the vegetation on the shoals adds to the problems of debris being swept downstream during periods of high flow. A programme for the removal of shoals would improve the situation, however, the cost of maintenance works to remove them and the adverse environment impacts may exceed the benefits.

Torkington Brook, upstream of the A626, flows through a steep sided valley. The valley sides are prone to landslips, which also uproot trees. Large quantities of eroded material are deposited in the brook, raising the bed level.

In order to undertake maintenance, the British Waterways empty sections of the Macclesfield Canal. In doing so, excessive quantities of water are released into Poise Brook and its tributaries, which cause erosion and may cause flooding (**Issue SS18**).

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 18**



**Flood Defence:
State of the Catchment**

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- Culverted Watercourse
- Canal
- Built up Area
- Weir / W.L. Control Structure
- Riparian Owned Debris Screen
- River Gauging Station

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 19**



NRA

National Rivers Authority
North West Region



**Flood Defence:
River Corridor Land Use Plan**

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- - - Culverted Watercourse
- Canal
- Built up Area
- Urban
- Semi Urban
- Rural



0 5km

Urban Channel Access

There are no access ramps planned in the Urban Channel Access scheme in the catchment. However, on the River Goyt, approximately 0.5 km upstream of the confluence with the River Tame in Stockport, there are continual problems with debris and shopping trolleys from the nearby Asda and Sainsbury's supermarkets (**Issue SS20**). A permanent access ramp at this location may make both maintenance of the channel and removal of the trolleys more efficient.

3.6.6 Standards of Service

A system has been developed by the NRA to determine the present standard of service being achieved for flood defence maintenance and all future manned maintenance programmes will be promoted against this background.

The system determines whether present levels of river maintenance have produced a level of protection within target standard, above standard or below. The river system is divided into reaches between 4 - 7 km in length. An assessment is made of the "land use" by considering for each reach the agricultural or urban content within the flood plain and for each element (e.g. road, house, intensive grazing) a score is given. The score measure by a single unit called a "House Equivalent" and by the score achieved, the reach is placed into one of several land use bands, which determines the cost beneficial level of maintenance to be applied.

3.6.7 Capital Investment

The prioritisation, feasibility studies, design and construction of capital investment projects will be carried out against a background of detailed project appraisal, to achieve cost effective flood defences for the protection of people and property against flooding, from the rivers and sea, to a standard appropriate to land use.

3.6.8 Investigations and Capital Works

A flooding problem existed, due to an inadequate capacity culvert on Ochreley Brook under Windlehurst Road, which affected a residential property and the road. Stockport MBC installed a larger culvert in 1995, which has increased the standard of flood protection.

Flood Defence works on Glossop Brook, Glossop are currently being undertaken. It is expected that Phase 3, of these works will be completed in Spring 1996 and Phase 4 will be completed by Spring 1997, at a construction cost of £3 million.

Detailed design of Flood Defence works on Poise Brook and Hazel Grove Brook in Hazel Grove is currently being undertaken (**Issue SS18**). The construction works are expected to commence in Spring 1996.

Detailed design of Flood Defence works on the River Etherow at Woolley Bridge has almost been completed by a consultant, Sir William Halcrow & Partners (**Issue SS10**). The construction works are programmed in the North West Region Long Term Plan for the years 1998 to 2000.

Detailed design of Flood Defence works at several locations on Black Brook in Chapel-en-le-Frith and Chinley is currently being undertaken by a consultant, Scott, Wilson and Kirkpatrick (**Issue SS2**). The construction works are programmed in the North West Region Long Term Plan for the years 1997 to 2000.

An investigation into flooding problems on the River Sett, is programmed to be undertaken in 1995/96 (**Issue SS5**). Potential flooding problems have been identified at Salem Mill, Watford Bridge, Birch Vale and the village of Hayfield. If a cost beneficial solution exists, capital works are programmed in the North West Region Long Term Plan for 1999/2000.

An investigation into flooding problems on the River Goyt at Whaley Bridge, is programmed to be undertaken in 1995/96 (**Issue SS1**). If a cost beneficial solution exists, capital works are programmed in the North West Region Long Term Plan for 2002/2003.

A review of several perceived flooding problems in the catchment will be undertaken in 1995/96 to ascertain whether further investigations should take place (**SCW3**).

Location	Description of flooding problems
River Goyt, Furness Vale	A weir and shoaling affect Furness Vale Sewage Works.
River Goyt, Hague Bridge	Inadequate capacity channel affects Waterside Road and a Cottage.
River Goyt, Roman Bridge Lake	Inadequate capacity channel affects the only access to residential properties.
River Goyt, Pear New Mill	Erosion of the flood banks, which protect the mill from flooding.
Tunstead Milton Brook, Tunstead Milton	An inadequate capacity culvert affects a road.
Randall Carr Brook, Horwich End	Erosion problems of banks could cause flooding of an industrial estate.
Randall Carr Brook, confluence with River Goyt	Shoaling and a pipe crossing affects residential property.

Location	Description of flooding problems
Warm Brook, Chapel-en-le-Frith	An inadequate capacity road bridge may affect cottages.
Warm Brook, Hayfield Road	Blockage of a debris screen on a culvert under the Ferodo factory, may affect commercial property and a road.
Ford Hall Brook, Wash	An existing small flood bank may not prevent flooding of cottages.
New House Brook, Hayfield	A series of culverts of inadequate capacity may affect several residential properties.
Park Hall Brook, Clough Mill	Inadequate channel capacity may affect residential properties.
Hollingworth Clough Brook, Hayfield	Swallow Lane Bridge has inadequate capacity and affects a paper mill and the lane.
Cataract Brook, Mellor	Inadequate capacity culverts.
Ochreley Brook, confluence with Poise Brook	A culvert, which is in a poor state of repair, could become a blockage problem.
Hurst Brook, Glossop	A restrictive road bridge and an inadequate capacity channel with several obstructions affect Hurst Mill.
Long Clough Brook, Charlestown	A culvert beneath an industrial estate contains high quantities of debris and is susceptible to blockage.
Hurst Clough Brook, Hodgefold	A potential flooding problem at Leyland Cottages.
River Etherow, confluence with River Goyt	A flooding problem exists at a Cottage.

3.6.9 Ordinary Watercourses

In the Goyt catchment, there are several ordinary watercourses, which have some stretches in a state of dereliction. These watercourses include three minor tributaries of the River Etherow; Simmondley Brook, Coombes Brook and Charlesworth Brook. All of these brooks could be considered for designation as Main River (**Issue SS13**).

In the Goyt catchment, there are also ordinary watercourses, which have had perceived flooding problems identified, due to inadequate capacity culverts. The locations of these problems are: Padfield Stream in Padfield; Cataract Brook in Moored; and Pear Tree Brook, near the confluence with the River Etherow in Woolley Bridge. These brooks could also be considered for designation as Main River (**Issue SS15**).

3.7 WASTE DISPOSAL

General

The majority of the waste generated within the UK is disposed of via landfill sites. The wastes that pose the most threat to the water environment are those that degrade or produce water soluble products. All rivers and groundwaters can be placed at risk from landfill sites. However groundwater tends to be the most vulnerable, due largely to the practice of infilling mineral extractions below ground level.

A Waste Management Licence (WML) is required from the Waste Regulation Authority (WRA) for the storage, treatment, or disposal of controlled waste on land.

The disposal of waste onto land is regulated under Part II of the Environmental Protection Act 1990. The relevant provisions for licensing of waste activities were implemented on 1 May 1994. Before this date, licensing of waste operations was required under Part I of the Control of Pollution Act 1974, which was implemented through Regulations in 1976. Prior to this date, controls over waste activities were indirect and included the planning and Public Health powers exercised by the local authorities. Hence, disposal of waste was largely uncontrolled and therefore, knowledge of what has been disposed and where, is incomplete.

A WML sets out the requirements for the detailed operation of the site and includes measures to be taken, by the operator, to safeguard and protect the environment. For a non-inert landfill such measures may include, an engineered liner to contain any leachates which may be produced within a landfill and measures for collecting and disposing of these leachates. Licence holders are generally required to monitor groundwaters, surface waters and leachate to ensure that landfill sites are operating to the expected standards.

It should be noted that many waste management operations, other than landfill, also require a WML. These activities include transfer stations, incinerators, metal recycling facilities, and waste storage and treatment facilities. For such sites, licences may require impermeable surfacing, bunding of tanks and the appropriate disposal of contaminated surface water run-off.

For currently licensed sites, the WRA can continue to require the environmental management and monitoring of the site until it considers the site is no longer likely to cause any pollution of the environment, and the licence can be surrendered.

3.7.2 Local Perspective

There are many current waste management operations within this catchment. The number of each activity is listed below:

Inert Landfill	15
Non Inert Landfill	2
Waste Transfer Station	19
Scrapyard	5
Storage Facility	4
Civic Amenity (Household Waste Disposal Sites)	13
Waste Treatment	3
Incinerator	1

The NRA has close links with the WRAs once the licence has been issued and the site is operational. They will also be involved in discussions regarding the surrender of a licence and the necessary issue of a Certificate of Completion, for any sites within this catchment.

A WML sets out the requirements for the operation of the site and includes measures to be taken by the operator, to safeguard and protect the environment for example lining and capping requirements, bunding of storage tanks.

3.7.3 Environmental Objectives

- To ensure waste management activities do not compromise water quality or water resources, and that they are undertaken in accordance with advice given in the NRA's Policy and Practice for the Protection of Groundwater document.

3.7.4 Environmental Requirements

Water Quality

- All sites should comply with EC Directives on dangerous substances discharged to surface and groundwaters.
- The NRA Groundwater Protection Policy should be implemented.
- No sites should cause pollution of the water environment.

Water Quantity

- No reduction in the availability of water resources
- Minimise the loss of recharge to aquifers.

Physical Features

- Restore all sites to an acceptable environmental standard, taking into account, or consideration, the opportunities for conservation recreation and amenity.
- Features of the water environment which are of ecological or landscape value should be safeguarded.
- Ensure that any necessary flood defence works should be carried out in an environmentally sensitive manner.
- The integrity of the river channel adjacent to the landfill sites should be maintained.

3.8 CONTAMINATED LAND

3.8.1 General

In most areas of industrial development, sites of contaminated land are found. The North West Region in particular has suffered in this respect, due to its significant role in the Industrial Revolution. Due to the expansion of industry within the towns and cities, many rural areas were also utilised, at that time, for the disposal of the waste products.

Significant areas of land have been contaminated as a result of:

- Chemical Works
- Tanneries
- Gas Works
- Oil Processing
- Engineering Works
- Metal Refining Works
- Mining/Mines
- Closed Landfill Sites
- Textile Industry

Historically, poor site management, housekeeping and operation, frequently resulted in land becoming contaminated. In recent times, the awareness of potential environmental impact of activities has improved this situation.

The NRA is a consultee of the Planning Authorities under the Town and Country Planning Acts. The NRA will advise developers of common land sites on the vulnerability and sensitivity of the site in relation to groundwaters and surface waters. The implications of the contamination present will be considered and any required remediation highlighted. The NRA encourages consultation on site reclamation and redevelopment at an early stage.

Where a site is known to be causing an impact on the water environment, the NRA will seek improvement measures from the landowners or occupiers in order to alleviate the situation.

A significant concern is that the full extent of contaminated land sites both locally and nationally has not been identified. This will be a major challenge for the future. The Environment Act 1995 sets out provisions and duties for contaminated land which will be carried out by the Agency and the local authorities. The Environment Act 1995 also provided for guidance to be issued to define what constitutes contaminated land. Risk of water pollution will be included as a factor in the guidance on the identification of contaminated land.

The Act gives to local authorities a new duty, to identify contaminated sites and empowers them to serve remediation notices. The Environment Agency will provide

guidance and will deal with 'Special Sites' of particular complexity or difficulty.

Remediation of contaminated land, in general, costs very substantial sums of money. Although polluters or landowners may be found liable and made to pay, overall progress is likely to be influenced by government policy, and in particular by the availability of funding. Many contaminated sites are in public ownership as a result of abandonment. Often the feasibility of remediation is influenced by the added value conferred on land by remediation and redevelopment. Where a site is not suitable for a high value after use the economics and securing of funding become more difficult.

Whilst acknowledging the economic issues, the NRA will seek to achieve the improvements necessary to prevent unacceptable risks of water pollution from contaminated land.

3.8.2 Local Perspective

Historically, the industries associated with this catchment have predominantly been the textile industry, with some paper mills, chemical works and dye manufacturers.

3.8.3 Objectives

- The risk of land becoming contaminated from current and future activities should be minimised.
- Advise on re-development of sites and promotion of a reduction in the risk of pollution to controlled waters should be undertaken.
- There should be no detrimental impact through re-development.

3.8.4 Environmental Requirements

Water Quality

- All sites should comply with EC Directives on dangerous substances discharged to surface and groundwaters.
- The NRA Groundwater Protection Policy should be implemented.
- No sites should cause pollution of the water environment.

Water Quantity

- No reduction in the availability of water resources.

Physical Features

- All sites should be reclaimed to an acceptable environmental standard, taking into account the opportunities for conservation, recreation and amenity.

3.9 FISHERIES

3.9.1 General

This use covers game and coarse fisheries, that is, the development and maintenance of breeding populations of salmonid and cyprinid fish species.

The NRA has duties to maintain, improve and develop fisheries and to further the conservation of fish species. Fish populations are affected by the quality and quantity of water as well as by the availability of suitable physical habitat features. Fish are, therefore, important indicators of the overall health of the river.

3.9.2 Local Perspective

The NRA undertake fish population surveys on all rivers within a three year rolling programme. The results of these surveys can be summarised with the use of three coloured maps. The first map (**Map 20**) indicates the habitat potential or 'expected species' according to a subjective classification of habitat type. This is compared to a second coloured map (**Map 21**) indicating the actual species present, from the results of the survey. The third map (**Map 22**) is then drawn showing the shortfalls in habitat potential, as far as species composition is concerned. The data collected on fish populations can be used to help classify and establish objectives for the river.

The habitats within the Goyt catchments are suitable for salmonid fish species, with some reaches more suited to coarse fish species such as chub, dace and roach.

Brown trout were recorded within most of the Etherow sub-catchment. Very good coarse fisheries were recorded in Compstall park, where large shoals of roach were present in June 1994, suggesting spawning congregations.

Upstream of Woodhead Reservoir no fish were recorded in spite the good habitat. This was probably because of the prevailing natural acid conditions.

No fish, or only sticklebacks, were recorded between Glossop Brook and Broadbottom. Brown trout were present in the whirl pool at Broadbottom, indicating recovery.

Good densities of native brown trout were present in Hurst and Shelf Brooks. Brown trout were recorded in Glossop Brook but in relatively low densities. Work is being carried out to assess the environmental impacts of the flood defence works in Glossop Brook.

The fish populations within the River Goyt catchment were also dominated by brown trout. There were reaches where the fish populations did not meet the expected habitat potential.

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 20**



NRA
National Rivers Authority
North West Region

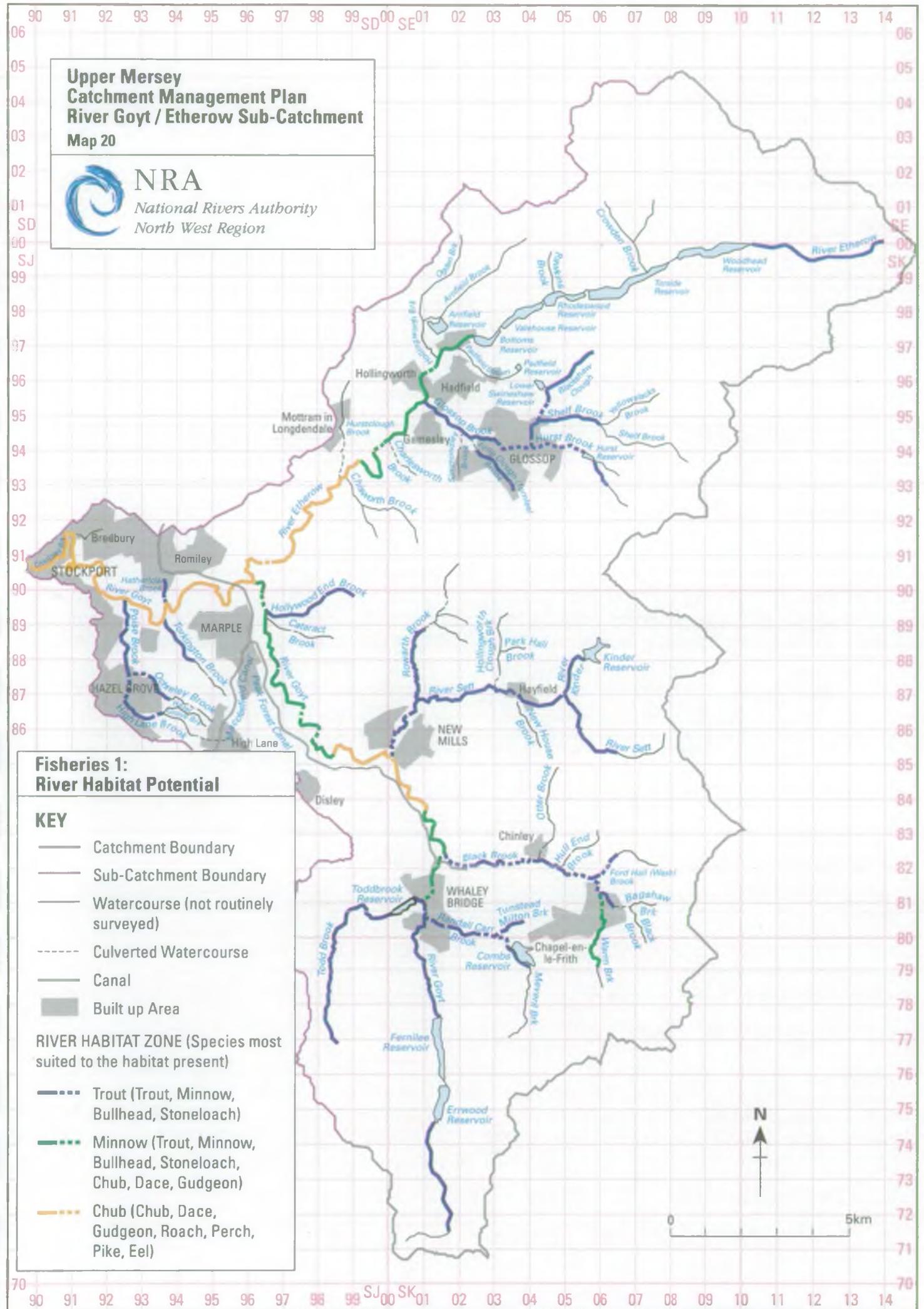
**Fisheries 1:
River Habitat Potential**

KEY

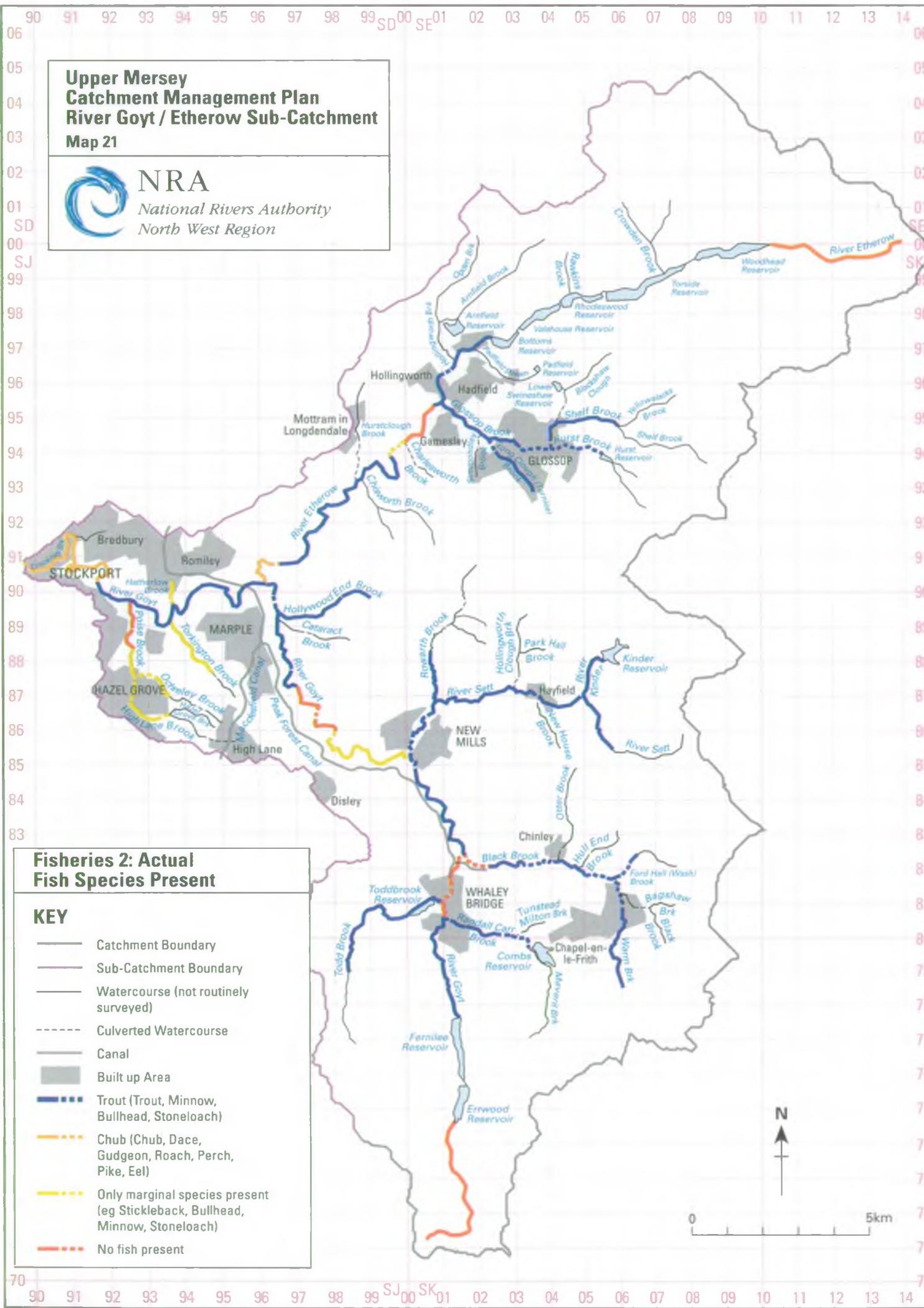
- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse (not routinely surveyed)
- - - - Culverted Watercourse
- Canal
- Built up Area

RIVER HABITAT ZONE (Species most suited to the habitat present)

- Trout (Trout, Minnow, Bullhead, Stoneloach)
- Minnow (Trout, Minnow, Bullhead, Stoneloach, Chub, Dace, Gudgeon)
- Chub (Chub, Dace, Gudgeon, Roach, Perch, Pike, Eel)



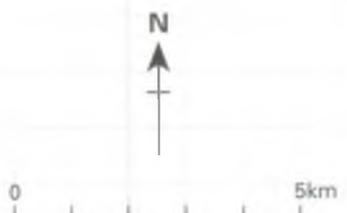
**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 21**



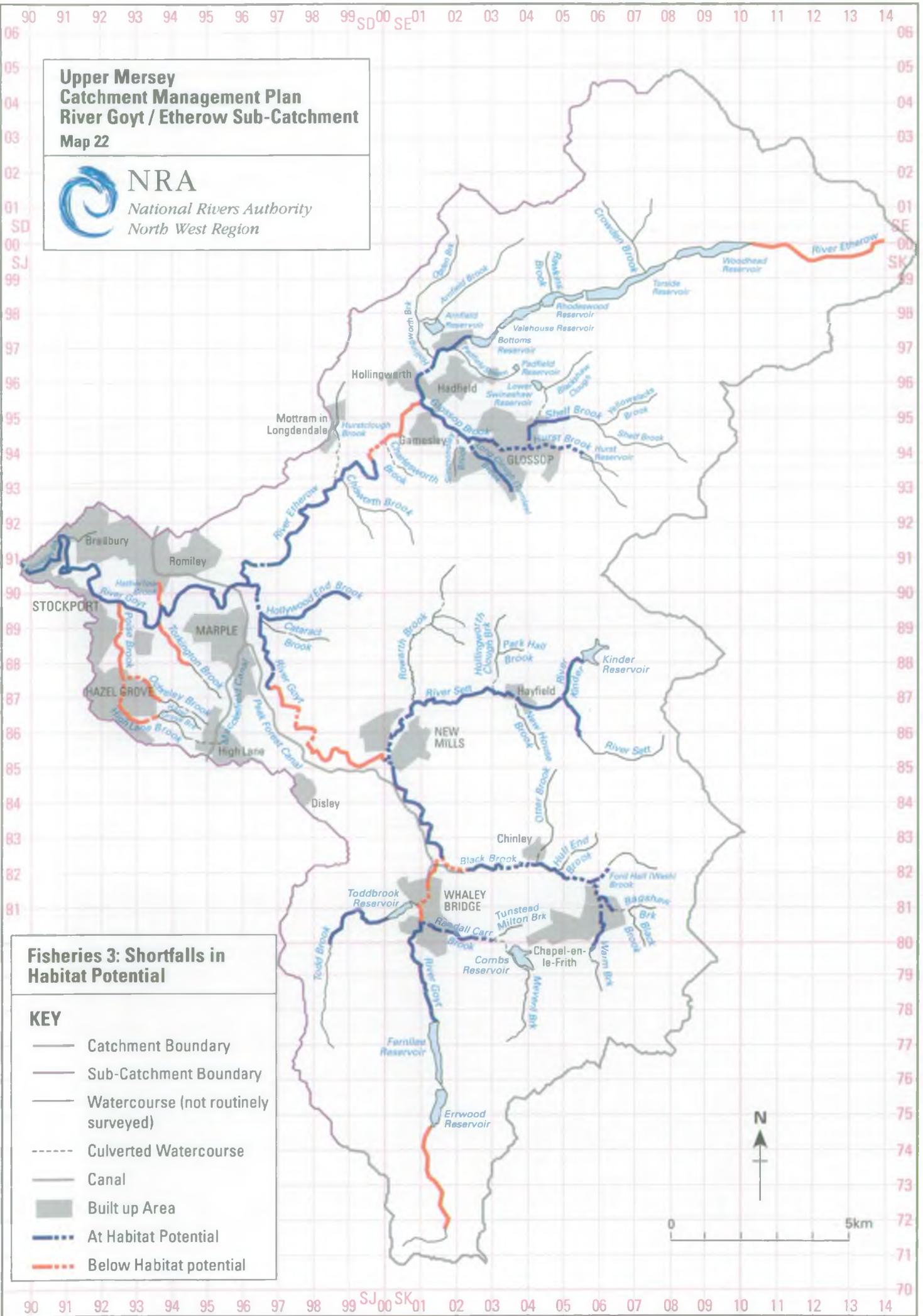
**Fisheries 2: Actual
Fish Species Present**

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse (not routinely surveyed)
- - - Culverted Watercourse
- Canal
- Built up Area
- Trout (Trout, Minnow, Bullhead, Stoneloach)
- Chub (Chub, Dace, Gudgeon, Roach, Perch, Pike, Eel)
- Only marginal species present (eg Stickleback, Bullhead, Minnow, Stoneloach)
- No fish present



**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 22**



Fisheries 3: Shortfalls in Habitat Potential

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse (not routinely surveyed)
- - - - Culverted Watercourse
- Canal
- Built up Area
- At Habitat Potential
- - - - Below Habitat potential



0 5km

Upstream of Errwood Reservoir no fish were recorded, presumably because of acid conditions.

Between Randle Carr Brook and Black Brook no fish were recorded at all.

Only minor coarse fish species were present within the River Goyt downstream of New Mills. Recovery in conditions was indicated by the presence of brown trout in the river at Bottom's Hall.

No fish were recorded within the downstream reaches of Black and Poise Brooks. Only minor coarse fish species were present in Ocherly, Torkington and Hatherlow Brooks, and the upstream reaches of Poise Brook.

Chub and barbel have been stocked into the Goyt and Etherow as an enhancement measure, around the Marple and Broadbottom area during 1994. The fish populations will continue to be monitored and hence any improvements assessed as they occur.

Environmental Objectives

Water Quality:

- River stretches suitable for brown trout are to be maintained within the limits for pollutants as specified in the EC Fisheries Directive (78/659/EC) for salmonid fish, or by non-statutory RQOs and future SWQOs, whichever are appropriate.
- The remaining designated river stretches are to be maintained within the limits of pollutants as specified in the same EC Directive, but for coarse fish species, or by non-statutory RQOs and future SWQOs, whichever are appropriate.

Water Quantity:

- A flow pattern is required where the monthly average reflects the established or natural flow conditions in the river.

Physical features:

- A diversity of natural river features are required for example riffle/pool sequences, weed beds for feeding and spawning. It is necessary to ensure that a suitable variety of habitats are provided, to allow the maximum production and long term security of the resident fish populations.
- The presence of bankside vegetation is required to provide adequate shade, cover and refuge.

- - River maintenance operations must have a minimal impact on fish populations and enhance river habitat diversity where practical.
- Access by fish to all sections is necessary to sustain a viable population. The passage over or through obstructions is required.

3.10 CONSERVATION

3.10.1 General

This use relates to the conservation and enhancement of wildlife and wildlife habitats, and geomorphological features in the river corridor. Conservation covers both the designated sites and the wider countryside associated with rivers and the water environment.

3.10.2 Local Perspective (Map 23)

A number of River Corridor Surveys (approximately 20% of the catchment) have been completed on the Goyt and Etherow catchment. These including Poise, Black, Shelf, Hurst, Glossop and Longclough Brooks, Blackshaw Clough and the Rivers Etherow and Goyt themselves. Many stretches of the main river and tributaries would benefit from further survey work.

Twenty River Habitat Surveys (RHS) have been completed on the Goyt/Etherow catchment. This is a classification system which gives an indication of the conservation interest of the watercourses based on their physical characteristics. The data from the Goyt/Etherow surveys can be compared to sites all over the country using a national database. It is important to note that the RHS methodology and database are still being developed, therefore, the volume of data is still relatively limited. However, this survey information should prove increasingly important as the number of sites surveyed nationally increases.

Land use within the catchment can be split into three main categories:

- moorland often utilised for sheep grazing;
- semi-improved or improved grasslands often interspersed with areas of mixed woodland;
- industrial and urban areas (lower).

Using RHS data it can be seen that land use in the Goyt and Etherow catchment generally reflects the national data averages. However, a greater presence in the amount of both moorland and woodland within the catchment can be detected.

The upper reaches of both the Goyt and the Etherow lie within Environmentally Sensitive Areas (ESA) designated by Ministry of Agriculture, Fisheries and Food (MAFF) because of its "high landscape, wildlife and historical value". The scheme encourages the continuation of traditional farming practices, maintenance and enhancement of the environmental value of the wildlife habitats and landscape of the area.

Within the ESAs there are two areas designated as Special Protection Areas (SPAs) under the EC Directive on the Conservation of Wild Birds. The land within these boundaries is of particular value for bird populations and the designation protects against change of land use which may be detrimental to the habitat. These SPAs are also designated as Sites of Special Scientific Interest (SSSI).

There are five more SSSI designated areas within the catchment. Two are reservoirs on Goyt tributaries, Toddbrook and Coombs Reservoirs. Three associated sites on the Etherow, Compstall Nature Reserve, Etherow Country Park and Roach Wood. These include a number of habitats including open water, tall fen, reed swamp, carr and mixed deciduous woodland.

There are also many Sites of Biological Importance (SBI) within the catchment, which include river corridors, ponds, lodges and/or associated wetland features. Apart from the important main river SBIs a number of the tributaries or parts of tributaries have been designated as SBIs. These include Torkington, Otterspool, Gigg, Hollywood End and Cataract Brooks in the lower reaches of the Goyt and Etherow and further upstream Hollingworth Brook and the River Kinder. Ochreley Brook, although not designated a SBI was found to be the only "semi-natural" watercourse of the 20 sites habitat surveyed. "Semi-natural" is determined by a lack of weirs, culverts and navigation along with no bank or channel modifications within the survey section for RHS purposes.

The upper reaches of the Goyt and Etherow are naturally fast flowing, boulder/cobble substrate with either riffle/pool or cascade/pool sequences. Data collected from the RHS indicates a higher proportion of riffle, cascade and torrential water flow types present in the Goyt and Etherow catchments compared with the total Mersey catchment and the national data set. The data also shows a high diversity in channel flow type. As the Goyt and Etherow catchments are predominantly upland watercourses with steep gradients a diverse range of habitats and physical features would be expected.

The influence of man is surprisingly common even in these upper reaches, many of the watercourses have been channelised within stone walls. However, these are generally dry stone walls which often blend in with and are a feature of, the local landscape, for example, Glossop Brook, its tributaries and the River Etherow. Often these stone walls are set to provide an over wide channel which still allows sinuosity with the formation of shoals and point bars. Seventy percent of the sites surveyed on the Goyt and Etherow had some bricks or laid stones reinforcement along at least part of their banks. Where the channel is not constrained, natural physical features such as stable and eroding earth cliffs, point and side bars form. These provide an increase in the diversity of habitat available to flora and fauna and generally enhance the watercourses nature conservation value. The presence of earth cliffs provide important potential nesting sites for kingfishers, which have been seen at a number of sites within the catchment (Issue SCW4). Other species such as grey wagtails and dippers utilise exposed boulders and gravelly shoals when foraging for food. Similarly sandpipers found on the Etherow catchment rely on exposed shoals to feed.

As the rivers flow through the middle and more low lying land, for example, from Gamesley and Whaley Bridge, bankside trees become much more frequent providing shade and exposed root systems which increase habitat diversity. Seventy five percent of the rivers habitat surveyed, had exposed root systems present along the channel edge providing good habitat for otters and fish. As the rivers pass through the smaller towns and villages and then on to the Manchester suburbs, human influence becomes more noticeable; resectioning and reinforcing of the banks along with some realignments of the channel are increasingly present. Although work has sometimes been carried out in an environmentally unsympathetic manner using unnatural channelisation, concrete and sheet steel piling, the frequent use of dry stone wall reinforcement provides some local conservation interest and can support a diverse range of plant communities, especially ferns.

Glossop Brook is a major tributary of the Etherow. Much of Glossop Brook itself is constrained within stone walls and flanked by urban and industrial development. However, a stretch of naturally meandering channel forming eroding cliffs, rocky outcrops and gravel bars, with adjacent woodland, increases the conservation value of this watercourse. Tributaries of Glossop Brook include Hurst and Shelf Brooks and Blackshaw Clough. Of these Shelf Brook is of particular conservation interest and includes species rich flushes and a diverse range of geomorphological features.

Black Brook is a major tributary of the River Goyt and again a large proportion of the watercourse is constrained by stone walls. Where natural banks occur occasional areas of earth cliffs and gravel bars add to the conservation value of the watercourse. Adjacent land is dominated by semi-improved grassland but some important areas of woodland can be found.

There are a large number of weirs along the length of the Goyt and Etherow which affect sediment transport but also act to oxygenate the water. Thirty percent of the rivers which were habitat surveyed were found to have at least one weir present.

The non-native pest species, Himalayan Balsam, is found along the bank top throughout the catchment. Japanese Knotweed is also found in patches throughout the river corridor.

The non-native American signal crayfish has been reported in Hollywood End Brook (Issue SS7).

A relatively new problem has recently been identified on the River Goyt the Phytophthora root disease of Common Alders. This disease causes abnormally small, yellow and sparse leaves, which frequently fall prematurely, dead roots and strips of dead bark extending from ground level upwards, often marked by a tarry or rusty substance. The disease can prove fatal to Alders and result in destabilisation of the bank. A research project has been started by the Forestry Commission jointly funded by the NRA.

In general the catchment is of high conservation value and it is important that every effort is made to retain and where possible, restore natural features within the river corridor and adjacent land areas.

3.10.3 Environmental Objectives

The overall objective is to retain or recreate natural rivers within open, continuous river corridors, which are as wide as possible with a diverse range of habitats and physical features for people and wildlife.

This is to be achieved by:

- The retention of existing features of conservation interest.
- Actively promoting the enhancement and restoration of the river corridor, wherever possible/desirable.
- Seeking effective mitigation for any loss of conservation features.
- Safeguarding the special conservation interest for which sites have been designated.

3.10.4 Environmental Requirements

Water Quality:

- Water quality should not deteriorate to a level such that sites of high local conservation value lose their general aquatic interest.
- Water quality improvement at some sites would enhance the existing conservation value.

Water Quantity:

- A variable flow pattern is required, where the monthly average flow reflects the established or natural flow conditions in the river.
- Provide hydraulic continuity between the river and its flood plain is required where appropriate. The water is to be maintained at a high level where possible but particularly where wetlands occur. Spate flows should be allowed to inundate certain wetlands.
- Spate flows to be allowed to naturally cleanse the river channel.

Physical Features:

- The conservation and enhancement of the diversity of natural river features, such as meanders, earth cliffs, areas of erosion/deposition, pool/riffle sequences and the presence of aquatic vegetation and marginal (water's edge) vegetation is essential.
- It is necessary to protect and enhance a diversity of river corridor habitats, including marsh, ponds, fringe/overhanging vegetation, bankside trees and hedges, old channels, flood plain habitats, species rich bank vegetation, uncultivated buffer strips, grassland and woodland. Also, the conservation of the features which give rise to, or contribute towards the specific features of the designated conservation areas should be protected.
- The channel cross section needs to be appropriate for the river flow pattern.
- Assistance with the promotion of less intensive farming in river corridors through incentives such as Countryside Stewardship scheme needs to be provided.

3.11 RECREATION, AMENITY AND ANGLING

3.11.1 General

This use deals with those sports such as boating, where contact with the water occurs and also general waterside recreation such as walking and angling.

3.11.2 Local Perspective

The Goyt catchment is one of a number of river valley improvement schemes which have been undertaken throughout Greater Manchester. The valleys varied and dramatic landforms already attract many visitors and several recreation facilities have been developed over the last 25 years. The Goyt flows through areas of high amenity value close to an urban area and so has considerable importance with respect to recreation. One of the most characteristic features of the valley is the large tracts of woodland, many of which are important in ecological terms. They also provide attractive areas for recreation as do the large water areas artificially created to generate power in the 19th century.

The area is well served by footpaths, (**Map 24**). These include the Cheshire Ring Walk, along the Peak Forest canal, the nine mile Goyt Way footpath, the 11 mile Middlewood way and the Pennine Way, which passes through Longendale, an area within the catchment which is particularly good for walking.

Other activities available in the Goyt catchment include fishing, sailing, boating, horse riding, model boating. These are provided at various sites within the area, as seen on Map. Most of the recreation and visitor sites have ample parking, toilets, information points and picnic sites. Disabled facilities are provided at Compstall and Etherow Country Park, Werneth Low Country Park and Lymefield and Broad Mill.

The mid reaches of the Goyt are currently only marginal coarse fisheries with the lower reaches, from Marple to Stockport, providing a good and well used fishery. The Etherow and other tributaries of the Goyt provide good non-migratory salmonid fisheries and spawning streams.

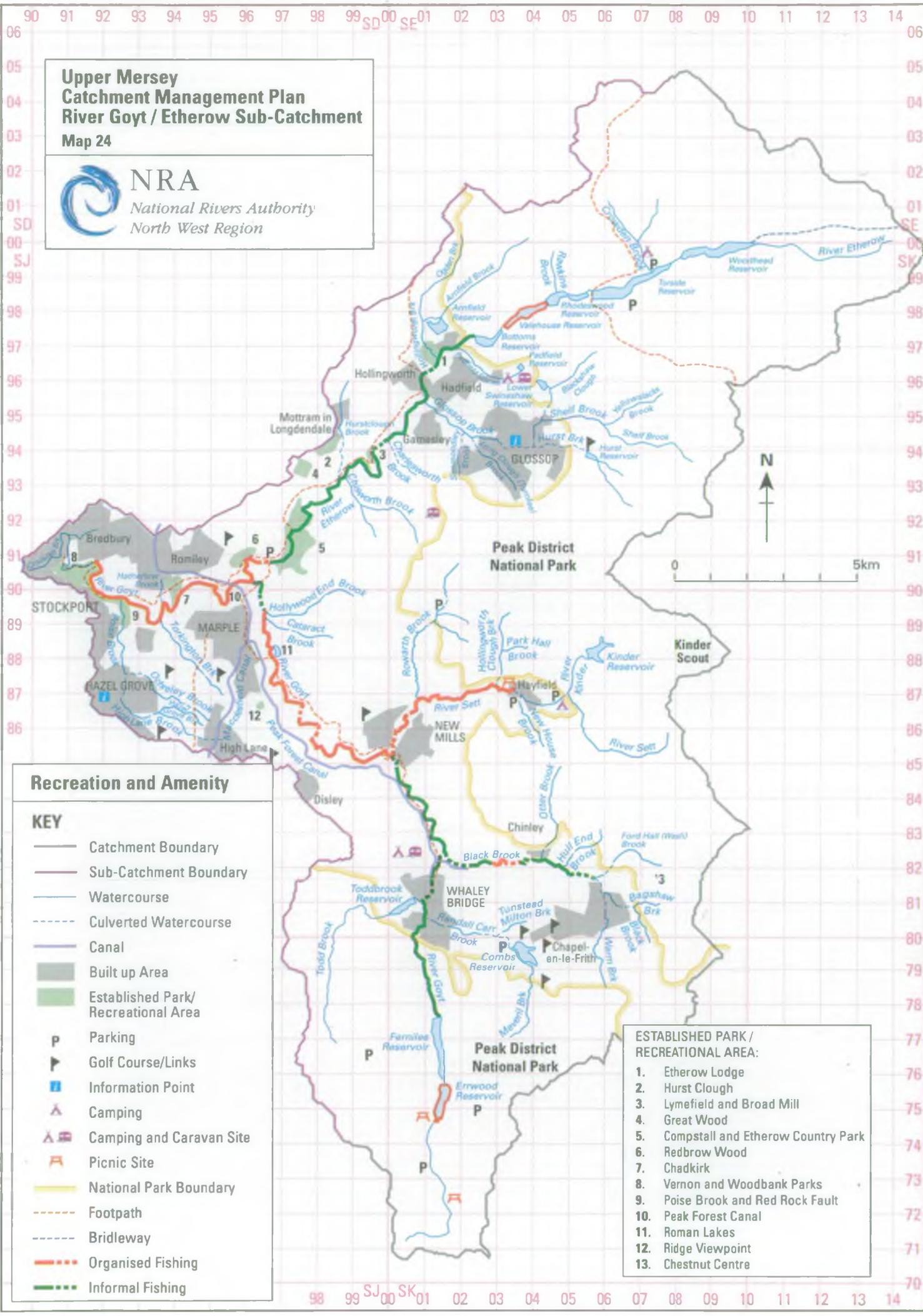
The improvement of the River Goyt and its tributaries over the last ten years has been significant in terms of the fish populations, with further water quality improvements planned for the future it is hoped fisheries will continue to improve.

Both organised and informal angling takes place along the Goyt and Etherow. On the River Goyt, the Stockport Federation of Anglers is the main angling body, having control of approximately 4.5 miles of river. Bredbury Anglers control a stretch of water by Otterspool Bridge. Disley and New Mills Angling Club also control a stretch of the Goyt. On the Etherow, Northumberland Angling Club controls the length of river from Compstall Road Bridge to its confluence with the Goyt.

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 24**



NRA
National Rivers Authority
North West Region



Recreation and Amenity

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- - - Culverted Watercourse
- Canal
- Built up Area
- Established Park/Recreational Area
- P Parking
- ▶ Golf Course/Links
- Information Point
- ▲ Camping
- ▲ Camping and Caravan Site
- ▲ Picnic Site
- National Park Boundary
- - - Footpath
- - - Bridleway
- . - . Organised Fishing
- . . Informal Fishing

ESTABLISHED PARK / RECREATIONAL AREA:

1. Etherow Lodge
2. Hurst Clough
3. Lyme field and Broad Mill
4. Great Wood
5. Compstall and Etherow Country Park
6. Redbrow Wood
7. Chadkirk
8. Vernon and Woodbank Parks
9. Poise Brook and Red Rock Fault
10. Peak Forest Canal
11. Roman Lakes
12. Ridge Viewpoint
13. Chestnut Centre

Any angling which takes place on the catchment's canals is controlled by the British Waterways.

The Warden Services within the area operate from several sites in the valley. These include Etherow Country Park Visitor Centre at Compstall and Lymefield Visitor Centre at Broadbottom. The work of the Warden Services encompasses site maintenance and access work, organising events and activities, giving guided walks and talks, leading educational groups, patrolling and providing information and advice to the public.

3.11.3 Environmental Objectives

To obtain suitable water quality, water quantity, flow characteristics and physical river conditions, so as to provide a suitable environment for the different types of recreational and amenity pursuits, required by the local population and visitors to the catchment.

3.11.4 Environmental Requirements

Water Quality:

- The minimum requirements are the protection of the amenity value of the watercourse.
- The water should be free from surface films and unnatural floating material, litter and unpleasant odour.

Water Quantity:

- A flow pattern which provides suitable conditions for recreation amenity and angling.
- A monthly flow pattern which does not fall below the established natural low flow conditions.

Physical Features

- Sufficient access points for recreational and angling activities should be available.
- A mixture of open water, different flow rates and, instream and bankside vegetation should be available.
- Facilities are required where in river obstructions occur, for river users to be able to pass, for example, launch and retrieval points at weirs.
- Improvements, where required, in riverside recreational facilities especially in urban areas.

3.12 LANDSCAPE AND HERITAGE

3.12.1 General

The NRA has a statutory duty to promote the conservation and enhancement of natural beauty. Inland and coastal waters, for land associated with such waters and to have regard to the desirability for protecting and conserving buildings, sites and objects of archaeological architectural or historic interest.

This duty covers nationally important areas and sites, for example, Areas of Outstanding Natural Beauty, National Parks and Scheduled Ancient Monuments, as well as locally valuable areas and sites.

Opportunities for enhancement of natural beauty are achieved through the activities of third parties (through negotiations with local authorities and developers) and as part of the NRA's activities.

3.12.2 Local Perspective (Map 25)

The Goyt and Etherow Valleys are significant open land spaces lying close to the conurbations of Manchester. The catchment is of high visual quality, borne out by landscape designations covering around 80% of the area together with a high number of building conservation areas covering towns and villages. The characteristic features of the catchment include extensive woodland along river valleys and varied topography.

Designations at national level include the Peak District National Park covering over half the catchment area. There are also 27 Scheduled Ancient Monuments.

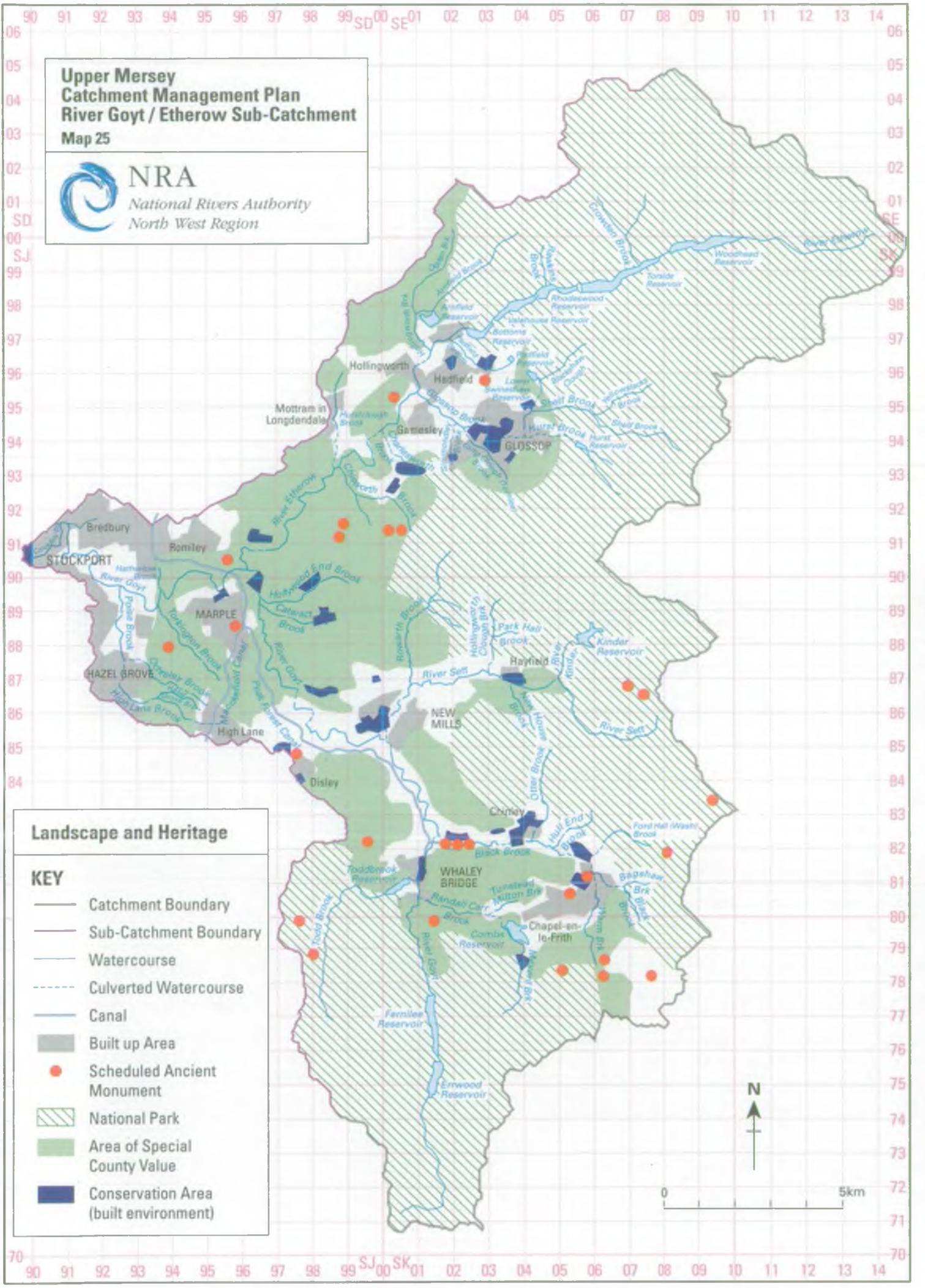
Designations at local level include an extensive area along the foothills of the Peak District, designated an Area of Special Landscape Value. There are also 27 Conservation Areas covering the built environment.

The Etherow catchment has significant woodland cover along its valley below the confluence with Glossop Brook, flowing through dramatic topography at Etherow Country Park. The Goyt catchment by contrast, shows greater evidence of past industrial use with a number of mills and weirs associated with the river. Both valleys were influenced by the impact of the textile industry during the Industrial Revolution of the 18th and 19th centuries. Remnants from this period are now historical features of the valley landscape. Stone walled channels are an historic landscape feature of the catchment through the majority of built up areas.

The Goyt also retains good woodland cover into the urban fringe of Stockport at Woodbank Park, a significant feature for its location which should be conserved.

Dereliction within both valleys is local in scale. There are few sites which detract from their beauty.

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 25**



Landscape and Heritage

KEY

- Catchment Boundary
- Sub-Catchment Boundary
- Watercourse
- Culverted Watercourse
- Canal
- Built up Area
- Scheduled Ancient Monument
- National Park
- Area of Special County Value
- Conservation Area (built environment)



In summary, the catchment is significant for the high quality of both its natural and man-made landscape. A primary objective for the catchment should be to conserve the existing character and restore localised damaged areas as opportunities arise.

3.12.3 Environmental Objectives

The overall objective is to conserve and enhance the natural beauty of rivers and to conserve their heritage value.

This is to be achieved by:

- the retention of existing landscape character and features;
- seeking effective mitigation for any loss of landscape quality;
- the liaison with Local Planning Authorities and the Countryside Commission to discuss assessment and enhancement of river landscape quality;
- the liaison with Local Planning Authorities to ensure that high quality river landscapes are adequately protected across planning authority boundaries;
- promote and support initiatives to conserve heritage features and landscapes;
- the liaison with the County Archaeological Unit for all NRA capital and maintenance schemes.

3.12.4 Environmental Requirements

Water Quality:

- To be aesthetically acceptable, that is the water should be free from surface films, unnatural floating material, litter, discolouration and unpleasant odours.
- Should not deteriorate to a level such that sensitive heritage sites lose their interest.

Water Quantity:

- A flow pattern is required which reflects the natural or established flow conditions in the river.
- The water table should be maintained so as not to damage sensitive heritage sites.

Physical Features:

- In general to conserve and promote a diversity of natural features within the river valley and along the river corridor which are in keeping with the local landscape character.

3.13 DEVELOPMENT

The NRA has a pro-active role in the land-use planning system, advising Local Planning Authorities (LPAs) and developers, on matters concerning the water environment. The aim is to ensure future development is sustainable and land use change is guided and implemented in accordance with NRA policy and considerations.

Past development has had a major influence on shaping the catchment. New development must be carefully considered, to recognise both the potential adverse effects and the benefits, change can have on the water environment.

Major Developments

There is a residential and industrial development proposed at a site off Buxton Road, adjacent to the Peak Forest Canal, in Whaley Bridge. There are further residential developments proposed at Swallowhouse Mills and Wood Lane in Hayfield.

Major Highways

The A6(M) Stockport North-South By-pass scheme is being designed by L.G.Mouchel & Partners and will affect Poise Brook and its tributaries, Hazel Grove Brook and Ochreley Brook.

Development Policy

As there are many specific flooding problems which require restriction to be put on development, each development in the River Goyt catchment is considered on its own merits.

3.14 WATER POWER (including Mill Rights)

There are no licences on the Goyt for abstractions for Water Power.

3.15 FISH FARMING

There is one licensed abstraction for this purpose within the catchment relating to Ludworth Trout Farm at Marple Bridge.

4 ISSUES AND OPTIONS

The catchment management planning process allows the differences between a vision of the catchment and an assessment of its current status, to be identified. These differences, or shortfalls in achieving this vision, become issues within the plan. Options are generated to address these issues and through the catchment management planning process an action plan will be drawn up to achieve the vision of the catchment within a planned timescale.

In this report, we have identified the current and potential future uses of the catchment and targets have been outlined which aim to ensure that these uses can be sustained. We have described the current status of the catchment and identified a number of issues. These issues require consideration by all those interested in the future of the catchment's natural waste environment. The options which are described in this report to address the issues, represent a range of alternative courses of action and are generally not mutually exclusive. The final action plan which will be drawn up following extensive consultation, may include a combination of the options shown or further options identified during the consultation period.

Each issues is presented in the following manner:

- 1 A short description of the issue.
- 2 An attempt to determine the options to address the issue.
- 3 Identification of those responsible for action.
- 4 An assessment of the advantages and disadvantages associated with a particular option.

4.1 . SUB-CATCHMENT WIDE (SCW) ISSUES

SCW1 Bank stability threatened by tree growth in bank walls.

Much of the River Goyt, flows in stone walled channels. Bankside trees have, in places, grown through these walls causing potential stability problems.

Maintenance problems occur with trees and bushes growing through river bank walls. Not only do these damage the integrity of the walls themselves, which eventually collapse causing debris problems, but also during high flows, they are often swept downstream causing blockage problems and have been known to cause damage to the flood banks on the River Mersey. A maintenance programme to remove problem trees is necessary.

At the same time trees are a valuable part of the river corridor providing habitat for invertebrates, birds and mammals. Any removal of trees would result in a reduction in bank diversity and potential habitats.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Remove problem trees from bank walls and repair damage to walls. As this may be the only natural feature of the river, tree planting beside channel should be implemented, where appropriate.	Riparian Owner, NRA.	Trees and resulting debris from collapsing walls is prevented from entering the channel.	Cost of programme for removal. Difficult to get the riparian owners to undertake the works. Reduction in bank diversity and potential habitat.
2. Rebuild wall around trees where channel capacity allows.		Retains trees and bank diversity.	More cost than removal.
3. Do nothing.	Riparian Owner, NRA.	No additional cost to programme of removal.	Walls will eventually collapse resulting in higher cost to remove debris and rebuild walls. Visual impact when walls collapse. Potential loss of trees.

SCW2

Lack of channel capacity caused by shoal formation in the bed of the river.

Shoals are deposits in the channel bed, which are usually formed by the natural sediment transport processes of the river. They may be shingle or a combination of shingle with vegetated areas. Blockages may occur when debris catches on shoals and associated vegetation. Shoals provide important habitat for invertebrates, which in turn encourage other wildlife especially birds e.g. dippers and wagtails. Careful management of shoals, where they are causing problems is vital to prevent flooding, but total removal of these areas would be an unnecessary loss of habitat.

In the lower reaches of the River Goyt in Stockport, maintenance is undertaken to remove shoaling and debris. Elsewhere in the Goyt sub-catchment, limited maintenance of the channel to remove debris and shoaling is undertaken. Consequently extensive shoals, can develop, which are colonised by trees and bushes. In flood flows, they collect debris causing blockages, and therefore reduce the standard of flood protection. Furthermore, the vegetation on the shoals add to the regular problems of debris being swept downstream. A programme of removal of shoals would improve the situation. However, the cost of maintenance works to remove them may exceed the benefits, and there may be environmental implications.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Manage shoals, where appropriate.	NRA.	Reduces blockage potential. Reduces the amount of debris carried downstream.	Works cost may be greater than the benefits. Loss of channel habitat diversity and potential feeding and nesting sites. Disturbance to natural riverbed.
2. Leave shoals in.		Retain natural riverine habitat.	Potential flooding due to blockages. Aesthetic appearance of deposited sewage litter.

SCW3

River Goyt - Review of perceived flooding problems. A review of these problems to prioritise schemes is required.

The following sites will be included:

River Goyt, Furness Vale
River Goyt, Hague Bridge
River Goyt, Roman Bridge Lake
River Goyt, Pear New Mill
Tunstead Milton Brook, Tunstead Milton
Randall Carr Brook, Horwich End
Randall Carr brook, confluence with River Goyt
Warm Brook, Chapel-en-le-Frith
Warm Brook, Hayfield Road
Ford Hall Brook, Wash
New House Brook, Hayfield
Park Hall Brook, Clough Mill
Hollingworth Clough Brook, Hayfield
Cataract Brook, Mellor
Ochreley Brook, confluence with Poise Brook
Hurst Brook, Glossop
Long Clough Brook, Charlestown
Hurst Clough Brook, Hodgfold
River Etherow, confluence with River Goyt

OPTIONS	Responsibility	Advantages	Disadvantages
1. Complete the review.	NRA	Cost beneficial schemes will be identified and included in the North West Region Long Term Plan.	Non-cost beneficial locations will continue to flood.

SCW4

Adequacy of compensation waters to meet the environment's needs.

The adequacy of all the reservoir compensation flows throughout the catchment are to be evaluated to meet the environmental needs.

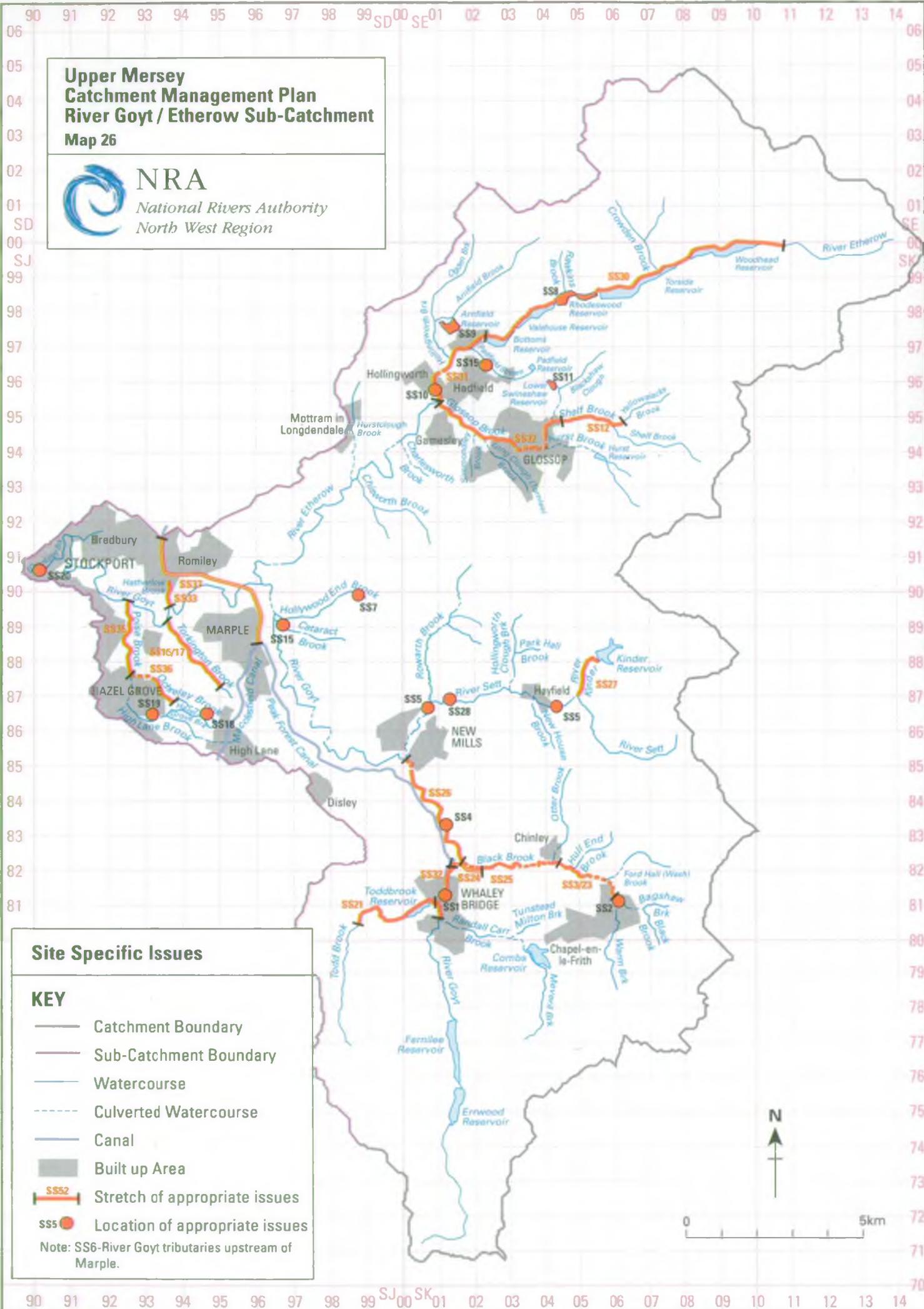
OPTIONS	Responsibility	Advantages	Disadvantages
1. Increase compensation flows from reservoirs.	NRW Ltd., NRA	Improvements to aquatic environment.	Possible cost to NRA in buyout compensation. Possible supply shortages.
2. Reduce compensation flows.	NWW Ltd., NRA	Increase water supply.	Reduction in environmental quality within river.
3. Do nothing.	NWW Ltd., NRA	Current water supply capacities maintained.	No improvement in river conditions.

SCW5**Inaccurate flood forecasting, due to lack of information on snow melt.**

In winter, precipitation in the upland areas of the catchment often falls as snow. Snow melt can, therefore, make a significant contribution to flows in the watercourses. At present, there is no mechanism for the measurement of the quantity of snow melt.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Instigate research and development study.	NRA	Improved level of understanding. Improves forecasting of flows.	Resource implications.
2. Do nothing.			Poor forecasts.

**Upper Mersey
Catchment Management Plan
River Goyt / Etherow Sub-Catchment
Map 26**



Site Specific Issues

KEY

- Catchment Boundary
 - Sub-Catchment Boundary
 - Watercourse
 - Culverted Watercourse
 - Canal
 - Built up Area
 - Stretch of appropriate issues
 - Location of appropriate issues
- Note: SS6-River Goyt tributaries upstream of Marple.



4.2 SITE SPECIFIC (SS) ISSUES (Map 26)

SS1 River Goyt - Whaley Bridge

Flooding problems affect residential properties.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Construct a flood defence scheme.	NRA	Improves the existing level of flood protection.	Works cost may be greater than the benefits. Potential environmental impact.

SS2 Black Brook - Chapel-en-le-Frith

A scheme is being designed to alleviate the flooding risk to residential and industrial properties.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Complete the design and undertake the works.	NRA	Improves the existing level of flood protection.	Cost of the works.

Exceedences of the Environmental Quality Standards (EQSs) for Total Ammonium and Non-Ionised Ammonia for the EC designated salmonid fishery

The significant sources of ammonia contributing to this failure have been the trade effluent from the Dorma site at Chinley and the effluent from North West Water Ltd's Chapel-en-le-Frith STW. Improvements at Dorma are already being pursued. Improvements to treatment at Chapel-en-le-Frith STW were completed by early 1995. It is envisaged that further improvements may be required at the sewage treatment works in order to secure compliance although this is not provided for in NWW Ltd's current capital programme and as such could be a long-term issue.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Evaluation of the impact of improvements completed at Chapel-en-le-Frith STW and being undertaken at Dorma.	NRA	Improvements already in hand may secure compliance.	
2. Further improvements at Chapel-en-le-Frith STW as required.	<p>NRA to assess requirements and promote within other regulatory influences capital expenditure by NWW Ltd.</p> <p>NWW Ltd to undertake capital works as appropriate.</p>	<p>Compliance with Environmental Quality Standards.</p> <p>Improvement to fishery potential.</p>	Possible cost to NWW Ltd and customers.

SS4 River Goyt - downstream of Whaley Bridge STW

Aesthetic deterioration due to colour and foam

The colour and foam associated with the final effluent from North West Water Ltd's, Whaley Bridge STW arises mainly from the trade effluent discharge to sewer from the Edward Hall site. The impact is visible over 13 kilometres downstream as far as the confluence with the River Etherow. Discussions have been ongoing for sometime as regards solutions. As the impact of the discharge from Whaley Bridge STW is controlled it is believed that the impact of the coloured effluent from Strines Textile further downstream could become significant.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the colour and foam associated with Whaley Bridge STW final effluent.	NRA to continue to pursue reduction. NWW Ltd to continue to pursue trade effluent reductions from Edward Hall. Edward Hall to undertake measures to achieve reduction.	Improvement to aesthetic and amenity value.	Cost to Edward Hall and possibly customers.

SS5

River Sett - Upstream of New Mills and the village of Hayfield

An investigation into flooding problems is being undertaken

OPTIONS	Responsibility	Advantages	Disadvantages
1. Complete the investigation.	NRA	If cost beneficial, the existing level of flood protection could be improved.	Works costs may be greater than the benefits.

SS6

River Goyt and Tributaries, upstream of Marple Bridge

Lack of hydrometric data, particularly upper reaches of the Goyt, River Sett and Black Brook

OPTIONS	Responsibility	Advantages	Disadvantages
1. Ascertain level of internal need and external customer demand for data.	NRA	If sufficient demand new gauging stations could be built.	Cost of gauging stations. Possible environmental impact at chosen location.

SS7

Hollywood End Brook

American Signal Crayfish reported in this brook

OPTIONS	Responsibility	Advantages	Disadvantages
1. Continue research project to assess impact of non-active crayfish on freshwater ecosystem.	NRA	Increased knowledge of the species.	Cost.
2. Investigate further.	NRA	Identify extent of problem.	Cost.

SS8

Rhodeswood Reservoir

Exceedence of the Environmental Quality Standard (EQS) for Polycyclic Aromatic Hydrocarbons and for Dissolved and Emulsified Hydrocarbons under the EC Surface Water Abstraction Directive

Both exceedences were due to one atypical result in each case. No specific sources are known in the catchment.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigation of potential sources and pursuance of remedial measures as appropriate.	NRA to undertake investigations and pursue remedial measures as appropriate.	Compliance with Environmental Quality Standards (EQSs).	Possible cost to responsible parties.

SS9

Arnfield Reservoir

Exceedence of the Environmental Quality Standard (EQS) for Dissolved and Emulsified Hydrocarbons under the EC Surface Water Abstraction Directive

Data for colour also exceeded the EQS. However, a waiver exists on this parameter for this abstraction because of the natural discolouration occurring from run-off from areas of peat. The exceedence for Hydrocarbons was due to a single atypical result. No specific sources of hydrocarbons are known within the catchment.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigation of potential sources and pursuance of remedial measures as appropriate.	NRA to undertake investigations and pursue remedial measures as appropriate.	Compliance with Environmental Quality Standard (EQS)	Possible cost to responsible parties.

SS10

River Etherow - Woolley Bridge

A feasibility study is being undertaken into Flood Defence works.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Complete the study. If feasible, design and construct works.	NRA	Improves the existing level of flood protection.	Cost of the works.

SS11 Swineshaw Lower Reservoir

Exceedence of the Environmental Quality Standard (EQS) for Dissolved and Emulsified Hydrocarbons under the EC Surface Water Abstraction Directive

The exceedance was due to a single atypical result. No specific sources are known in the catchment.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigation of potential sources and pursuance of remedial measures as appropriate.	NRA to undertake investigations and pursue remedial measures as appropriate.	Compliance with Environmental Quality Standard (EQS)	Possible cost to responsible parties.

SS12 Shelf Brook - upstream of Glossop

Over abstraction causes very low flows in dry weather

OPTIONS	Responsibility	Advantages	Disadvantages
1. No further abstractions permitted.	NRA	No further depletion of river.	No improvement in condition of the river. Cost of an alternative supply.
2. Attempt to reduce existing abstractions.	NRA	Improvements in aquatic environment.	Cost to NRA in Buyout compensation.

SS13

Simmondley, Coombes & Charlesworth Brook

These brooks have stretches in a state of dereliction. Potential to designate Main River.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Designate the brooks as Main River.	NRA, MAFF	Allows the regular maintenance of the brook, if necessary. Allows the improved regulation of development within the river corridor.	Additional cost of maintenance. More NRA staff resources required to undertake regulation.

SS14

River Etherow - downstream of Glossop Brook confluence

Lack of fishery.

The absence of fish was suspected due to abnormal conditions prevailing temporarily at the time of monitoring.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Continue to monitor to ensure that lack of fishery was temporary.	NRA	Provides information to support fisheries management decisions.	

SS15

**Padfield Stream - Padfield
Pear Tree Brook - Woolley Bridge
Cataract Brook - Moorend**

Potential flooding problem on ordinary watercourses, due to inadequate capacity culverts

OPTIONS	Responsibility	Advantages	Disadvantages
1. Review Main River status of brooks.	NRA, MAFF, Local Authority.	Improves regulation of the brooks.	Cost.
2. Investigate flooding problems.	Local Authority, Riparian Owner.	Improvements could be made to the existing level of flood protection.	Cost of investigation and improvements.

SS16

Torkington Brook - QSL at Hazelbank to confluence with River Goyt

Failure to achieve the proposed Long-Term Objective for the Biological Water Quality of B2 and limited fishery

Monitoring of biological water quality indicates mild organic pollution shown by the more pollution tolerant species resulting in biological class B3 conditions prevailing. The main source of organic pollution in this reach is believed to be a combined Sewer Overflow (CSO) at Dooley Lane. A project for its abandonment is in North West Water Ltd's current capital programme. Surface water run-off from parts of Marple may also affect this reach.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic load from the unsatisfactory sewer overflow at Dooley Lane.	NWW Ltd to undertake agreed capital works as a requirement of the EC Urban Wastewater Treatment Directive.	Achievement of the proposed Long-Term Objective for the Biological Water Quality. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd and customers.

SS17

Torkington Brook, upstream of A626

An erosion problem exists on the steep valley sides, which deposit eroded material in the brook.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigate methods of improving maintenance of brook.	NRA	Maintenance will be more efficient.	<p>Works cost may be greater than the benefits.</p> <p>Potential environmental impact of solution.</p> <p>Possible loss of natural bank features of solutions.</p>

SS18

Poise Brook - and tributaries

Release of water from the Macclesfield Canal can cause erosion/flooding problems in the brooks

OPTIONS	Responsibility	Advantages	Disadvantages
1. Instigate procedures to control the release of water from the canal, prior to maintenance operations.	British Waterways, NRA	Erosion and flooding problems will be reduced.	<p>Staff resources would be required to establish procedures.</p> <p>Emergency works may still cause problems.</p>

SS19

Poise Brook and Hazel Grove Brook

A scheme is being designed to alleviate the flooding risk to residential property

OPTIONS	Responsibility	Advantages	Disadvantages
1. Complete the design and undertake the works.	NRA	Improves the existing level of flood protection.	Cost of the Works. Potential environmental impact.

Debris and shopping trolleys dumped in the river

OPTIONS	Responsibility	Advantages	Disadvantages
1. Construct a permanent access ramp to the watercourse to aid removal.	NRA	Lowers the future maintenance costs.	Difficulty in concluding agreements with the landowners. Non-MAFF grant aidable.
2. Improve access to the channel through development control, if the opportunity arises.	NRA, Local Authority, Developers	Improves the access provision at no cost to the NRA.	Staff resources are required. Cost to developers.
3. Encourage the supermarkets to introduce coin operated trolleys	Asda, Sainsbury's	Discourages the dumping of trolleys at source.	Cost of trolleys. Does not address the problems of other debris.
4. Prosecute the supermarkets when trolleys are found in river.	NRA	Encourages the supermarkets to address the problem.	Does not address the problems of other debris.

LONG TERM WATER QUALITY ISSUES

Issues which will require resolution in order to achieve the Long Term River Ecosystem River Quality Objective

Despite the clear issues, which once resolved should allow for the achievement of the Short Term River Quality Objective, there are reaches which currently comply with their proposed Short Term River Quality Objective, although water quality issues may still be evident. Such problems give rise to Long Term River Quality Objectives. These objectives are what the NRA would desire, and although there is no current expenditure planned, or committed for dealing with such issues, it is hoped they can be resolved in the future, hence achieving the Long Term River Quality Objective.

SS21 Todd Brook - QSL at Browside Clough to confluence with River Goyt

Significant failure to achieve the proposed Long-Term River Ecosystem RQO of RE1 and failure to achieve the proposed Long-Term Objective for the Biological Water Quality of B1

Chemical analyses indicate periodic organic contamination. Biological water quality fluctuates between B1 and B2, with an occasional shift in dominance from stoneflies to more pollution tolerant species. Elevated pH levels of unknown specific origin during 1993 may have affected the invertebrates. Recent results indicate an improvement to B1 conditions. The known potential sources of organic input are believed unlikely to contribute to either failure.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Investigation of sources of pollution and implementation of remedial measures as appropriate.	<p>NRA to undertake investigations and pursue remedial measures.</p> <p>Parties responsible for pollution to undertake remedial measure as appropriate.</p>	<p>Achievement of the proposed Long-Term River Ecosystem RQO and the proposed Long-Term Objective for Biological Water Quality.</p> <p>Improvement to fishery potential.</p>	Possible cost to responsible parties.

SS22

River Goyt - Edward Hall site to Black Brook confluence.

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE3 and lack of fishery

The main input is believed to be the trade effluent discharge from the Edward Hall site. There are also 2 known Combined Sewer Overflows (CSOs) with outfalls to this reach.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic load discharged from Edward Hall.	<p>NRA to assess requirements.</p> <p>Edward Hall to achieve reduction.</p>	<p>Achievement of the proposed Long-Term River Ecosystem RQO.</p> <p>Improvement to fishery potential.</p>	<p>Cost to Edward Hall and possibly customers.</p>
2. Evaluation of the impact of Combined Sewer Overflows (CSOs) and reduction of organic load as appropriate.	<p>NRA to undertake evaluation of impact and promote within other regulatory influences capital expenditure by NWW Ltd as required.</p> <p>NWW Ltd to undertake capital works as appropriate.</p>	<p>Achievement of the proposed Long-Term River Ecosystem RQO.</p> <p>Improvement to fishery potential.</p>	<p>Cost to NWW Ltd and possibly customers.</p>

Failure to achieve the proposed Long-Term Objective for the Biological Water Quality of B2

The biological water quality of this stretch is affected by organic pollution. The fauna provides a biological quality indicator of B3 which is moderately diverse but dominated by more pollution tolerant species. There is a Combined Sewer Overflow (CSO) discharge to this reach which is currently considered unsatisfactory in terms of organic load. Surface run-off from the urban areas of Chapel-en-le-Frith is a further input which may be more difficult to control. The reach definition used here has been changed since objectives were previously published in terms of the NWC classification scheme.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic load from the unsatisfactory sewer overflow at Bowden Lane.	<p>NRA to promote within other regulatory influences capital expenditure by NWW Ltd.</p> <p>NRA/NWW Ltd to agree requirements.</p> <p>NWW Ltd to undertake capital works.</p>	<p>Achievement of the proposed Long-term Objective for the Biological Water Quality.</p> <p>Improvement to fishery potential.</p>	<p>Cost to NWW Ltd and possibly customers.</p>

SS24

Peak Forest Canal (Buxworth Branch) - QSL at Buxworth to junction with Peak Forest Canal

Significant failure to achieve the proposed Long-Term River Ecosystem RQO of RE4

The failure is due to periodically low dissolved oxygen concentrations. There are no known inputs to this canal and the failure may be due to the physical characteristics of the canal branch.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Further investigation of the occurrence of periodically low dissolved oxygen concentrations and implementation of remedial measures as appropriate.	NRA to undertake investigations and pursue remedial measures as appropriate. Remedial measures are likely to require the involvement of bodies such as British Waterways.	Achievement of the proposed Long-Term River Ecosystem RQO. Improvement to fishery potential.	Possible cost to bodies such as British Waterways.

Black Brook - Chapel-en-le-Frith STW to confluence with River Goyt

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE3 and lack of fishery

The improvements already completed at Chapel-en-le-Frith STW and committed at Dorma are considered under the Short-Term Issue relating to the current Fish Directive failure. It is possible that further improvements may be required as a long term issue. No fish were reported in the lower parts of the reach in a recent survey. Current water quality should not preclude a coarse fish population and it may be that the habitat is unsuitable. Water quality may be limiting for game fish for which the habitat would appear more appropriate. The reach definition used here has been changed since objectives were previously published in terms of the NWC classification scheme.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Evaluation of the impact of the Short-Term improvements at Dorma and Chapel-en-le-Frith STW.	NRA	The Long-Term River Ecosystem RQO may be achieved and fishery potential improved by these measures.	-
2. Further improvements at Chapel-en-le-Frith STW as appropriate.	NRA to assess requirements and promote within other regulatory influences capital expenditure by NWW Ltd as required. NWW Ltd to undertake capital works as appropriate.	Achievement of the proposed Long-Term River Ecosystem RQO. Improvement to fishery potential.	Possible cost to NWW Ltd and customers.

Significant failure to achieve the proposed Long-Term River Ecosystem RQO of RE3

The major input to this reach is from North West Water Ltd's Whaley Bridge STW. There are no proposals for improvements here within the current NWW Ltd capital programme. The quality of water entering the reach from upstream and from Black Brook are also significant here.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the organic load from Whaley Bridge STW.	<p>NRA to assess requirements and promote within other regulatory influences capital expenditure by NWW Ltd as required.</p> <p>NWW Ltd to undertake capital works as appropriate.</p>	<p>Achievement of the proposed Long-Term River Ecosystem RQO.</p> <p>Improvement to fishery potential.</p>	<p>Cost to NWW Ltd and possibly customers.</p>

SS27

River Kinder - QSL at Kinder Reservoir to confluence with River Sett

Significant failure to achieve the proposed Long-Term River Ecosystem RQO of RE1

There are indications of mild organic contamination. The only known input to the reach is the discharge from North West Water Ltds Kinder drinking water treatment plant which is due to close in 1996.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Continued monitoring particularly after closure of Kinder Water Treatment Plant.	NRA	Planned changes may permit achievement of the proposed Long-Term River Ecosystem RQO.	
2. Investigation of other potential sources of pollution as appropriate..	NRA	Achievement of the proposed Long-Term River Ecosystem RQO. Improvement to fishery potential.	Possible cost to responsible parties.

SS28

River Sett at Thornsett

Aesthetic deterioration due to ochre

The source of this characteristic discolouration is not fully understood but may relate to past mining activity in this area.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Reduction in the impact of ochreous discharge of unknown specific origin.	NRA to pursue means of discharge control or treatment.	Improvement to aesthetic and amenity value.	Difficulty in establishing liability/funding.

SS29

River Goyt - River Sett confluence to Strines Textiles site.

Limited Fishery

Although the two water quality classified reaches included here achieve the proposed Long-Term River Ecosystem RQOs there are indications of periodically poorer quality in the upstream reach above the Kruger Tissue site.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Continued monitoring of fishery status and water quality.	NRA	Gain further information on extent of problem.	-
2. Remedial measures as appropriate.	NRA/ Responsible parties	Improvement to fishery potential.	Possible cost to responsible parties.

SS30

River Etherow - QSL near Black Clough to Outlet of Bottoms Reservoir

Significant failure to achieve the proposed Long-Term River Ecosystem RQO of RE1 and failure to achieve the proposed Long-Term Objective for Biological Water Quality of B1

It is suspected that the current River Ecosystem monitoring point for the reach may not be entirely representative of it. Further monitoring elsewhere could still indicate failure. It is suspected that the Biological Water Quality is being affected by the high levels/nature of the sediment within the water released from the reservoirs. Acidity has also been suggested as a possible cause of the sparse fauna.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Collection of further chemical data to establish whether the River Ecosystem failure is valid.	NRA	Gain further information on the extent of this problem.	-
2. Further investigation of the causes of the biological water quality objective failure.	NRA	Gain further information on the extent of this problem.	-

SS31 River Etherow - Outlet of Bottoms Reservoir to Glossop Brook confluence

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE2 and failure to achieve the proposed Long-Term Objective for Biological Water Quality of B2

Chemical analyses indicate periodic organic contamination. A number of potential sources are under ongoing investigation. The potential sources include industrial surface water run-off via Padfield Stream and from Woolley Bridge Industrial Estate. There are also a number of Combined Sewer Overflows (CSOs) with outfalls to this reach.

OPTIONS	Responsibility	Advantages	Disadvantages
<p>1. Investigation of the impact of surface water run-off from industrial sites via Padfield stream and from Woolley Bridge Industrial Estate and implementation of remedial measures as appropriate.</p>	<p>NRA to undertake investigations and pursue remedial measures.</p> <p>Site owners to undertake remedial measures as required.</p>	<p>Achievement of the proposed Long-Term River Ecosystem RQO and the proposed Long-Term Objective for Biological Water Quality.</p> <p>Improvement to fishery potential.</p>	<p>Possible cost to industrial site owners.</p>
<p>2. Evaluation of impact of sewer overflows and reduction in organic load as appropriate.</p>	<p>NRA to undertake evaluation of impact and promote within other regulatory influences capital expenditure by NWW Ltd as required.</p> <p>NWW Ltd to undertake capital works as appropriate.</p>	<p>Achievement of the proposed Long-Term River Ecosystem RQO and the proposed Long-Term Objective for Biological Water Quality.</p> <p>Improvement to fishery potential.</p>	<p>Possible cost to NWW Ltd and customers.</p>

SS32

Glossop (Shelf) Brook - Old Glossop to confluence with River Etherow

Failure to achieve the proposed Long-Term Objective for the Biological Water Quality of B2

The restricted fauna in this reach is dominated by pollution tolerant mayflies and worms. The main sources of pollution affecting this reach are believed to be sewer overflows direct to Glossop Brook and to unclassified tributaries. None of the overflows are in North West Water Ltd's current programme for improvements. Surface water run-off from areas of Glossop also affects this reach.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Evaluation of impact of sewer overflows and reduction in organic load as appropriate.	NRA to undertake evaluation of impact and promote within other regulatory influences capital expenditure by NWW Ltd as required. NWW Ltd to undertake capital works as appropriate.	Achievement of the proposed Long-Term Objective for Biological Water Quality. Improvement to fishery potential.	Cost to NWW Ltd and possibly customers.

Hatherlow Brook - QSL at Romiley to confluence with River Goyt

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE3 and limited fishery

Chemical analyses indicate periodic organic contamination. Problems associated with the sewerage system or misconnections of foul drainage affecting the unclassified Hatherlow tributary are suspected as the cause.

OPTIONS	Responsibility	Advantages	Disadvantages
<p>1. Investigation of the suspected sewerage and misconnection problems affecting the unclassified tributary and implementation of remedial measures as appropriate.</p>	<p>NRA to undertake investigations and pursue remedial measures.</p> <p>Remedial measures could involve NWW Ltd and Metropolitan Borough of Stockport.</p>	<p>Achievement of the proposed Long-Term River Ecosystem RQO.</p> <p>Improvement to fishery potential.</p>	<p>Possibly costs to NWW Ltd and Metropolitan Borough of Stockport.</p>

SS34 - Poise Brook - QSL upstream of Torkington Park to Ochreley Brook confluence.

Limited fishery.

It is suspected that the movement of fish to this reach is prevented by the poor water quality between it and the River Goyt, some of which may originate in the reach itself. Resolution of this issue is related to other issues regarding the downstream reach of Poise Brook and Ochreley Brook.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Continue to monitor until water quality problems, manifest mainly downstream, are resolved.	NRA	Provides information to support fisheries management decisions.	-

Poise Brook - Ochreley Brook confluence to confluence with River Goyt

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE3; failure to achieve the proposed Long-Term Objective for Biological Water Quality of B3 and the absence of fish

Chemical analyses indicate periodic organic contamination. The Biological Water Quality of this stretch is B4 (poor) with a restricted fauna and dominated by worms and midge larvae. Sources of such contamination are Combined Sewer Overflows (CSOs) and agricultural activity in the catchment. At least some of this arises upstream of this reach and on the Ochreley Brook tributary. None of the CSOs are in North West Water Ltd's current programme of improvements. The upstream reach of Poise Brook and Ochreley Brook are the subjects of other issues.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Evaluation of the impact of sewer overflows in the catchment and reduction in organic load as appropriate.	<p>NRA to undertake evaluation of impact and promote within other regulatory influences capital expenditure by NWW Ltd as required.</p> <p>NWW Ltd to undertake capital works as appropriate.</p>	<p>Achievement of the proposed Long-Term River Ecosystem RQO and the proposed Long-Term Objective for Biological Water Quality.</p> <p>Improvement to fishery potential.</p>	<p>Cost to NWW Ltd and possibly customers.</p>
2. Investigation of the potential pollution from agricultural sources in the catchment and implementation of remedial measures as appropriate.	<p>NRA to undertake investigations and pursue remedial measures as appropriate.</p> <p>Agricultural concerns to undertake remedial measures.</p>	<p>Achievement of the proposed Long-Term River Ecosystem RQO and the proposed Long-Term Objective for Biological Water Quality.</p> <p>Improvement to fishery potential.</p>	<p>Possible cost to agricultural concerns.</p>

Ochreley Brook - QSL at Torkington Road to confluence with Poise Brook

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE3 and limited fishery

Chemical analyses indicate periodic organic contamination. Potential sources include drainage from farms within the catchment and a Combined Sewer Overflow (CSO) at Torkington Road.

OPTIONS	Responsibility	Advantages	Disadvantages
<p>1. Evaluation of the impact of Torkington Road CSO and reduction in organic load as appropriate.</p>	<p>NRA to undertake evaluation of impact and promote within other regulatory influences capital expenditure by NWW Ltd as required.</p> <p>NWW Ltd to undertake capital works as appropriate.</p>	<p>Achievement of the proposed Long-Term River Ecosystem RQO.</p> <p>Improvement to fishery potential.</p>	<p>Possible cost to NWW Ltd and customers.</p>
<p>2. Investigation of the potential pollution from agricultural sources and implementation of remedial measures as appropriate.</p>	<p>NRA to undertake investigations and pursue remedial measures as appropriate.</p> <p>Agricultural concerns to undertake remedial measures.</p>	<p>Achievement of the proposed Long-Term River Ecosystem RQO.</p> <p>Improvement to fishery potential.</p>	<p>Possible cost to agricultural concerns.</p>

SS37

Peak Forest Canal - Junction with Macclesfield Canal to Junction with Ashton Canal

Marginal failure to achieve the proposed Long-Term River Ecosystem RQO of RE4

The failure is due to periodically low dissolved oxygen concentrations. There are no known inputs to this canal reach. The cause is not fully understood but could relate to sediments affected by discharges in the past and to adjoining reaches.

OPTIONS	Responsibility	Advantages	Disadvantages
1. Further investigation of the occurrence of periodically low dissolved oxygen concentrations and implementation of remedial measures as appropriate.	NRA to undertake investigations and pursue remedial measures as appropriate. Remedial measures are likely to require the involvement of bodies such as British Waterways.	Achievement of the proposed Long-Term River Ecosystem RQO. Improvement to fishery potential.	Possible cost to bodies such as British Waterways.

APPENDICES

GLOSSARY

ABSTRACTION LICENCE

A licence to abstract water issued by the NRA. The maximum annual, daily, and hourly abstraction rates are normally set within the terms of the licence.

AQUIFER

A layer of underground porous rock which contains water and allows water to flow through it.

BED

The bottom of a river.

BED CONTROL

Stable river bed which limits the movement of bed materials.

BERM

A shelf at the base of a bank at normal flows which gives extra channel width in high flows.

CARR

Wet woodland composed of trees such as willow and alder, which is a successional stage between open water and dry woodland.

CHANNEL

A cutting in land along which a river flows.

CONFLUENCE

Point where two, or more, rivers meet.

CLOUGH

A small steep sided river valley.

COMPENSATION WATER

Water released from a reservoir to maintain the flow required in the river.

CULVERT

A man-made structure, for example a pipe, carrying a watercourse underground.

CYPRINIDS

The carp family of fish comprising some 200 freshwater species.

DEPOSITION

Where a river flows more slowly it may deposit gravel, sand and silt in its channel - often on the inside edge of bends or meanders.

DIFFERENT UNITS FOR FLOW MEASUREMENT

m³/s Cubic metres per second (cumec)
l/s Litres per second
Mld Megalitres per day
mgd Millions of gallons per day

Conversion Table

m ³ /s	Mld	mgd
0.012	1	0.224
0.06	5	1.12
0.12	10	2.24
0.24	20	4.48
0.6	50	11.2
1.2	100	22.4

DRIFT

Superficial deposits covering solid rock. Often deposited by rivers or by former glaciation in the form of boulder clay, peat or sands and gravels.

DRY WEATHER FLOW

It is a selected flow that is not exceeded for ten successive days which is also referred to as a Q95 flow.

FAUNA

Animal life.

FLUVIAL

Adjective of rivers.

FRESHWATER FISH

For the purpose of the Salmon and Freshwater Fisheries Act 1975, fish other than salmon, brown trout, sea trout, rainbow trout and char.

GEOMORPHOLOGICAL FEATURES

Physical features of a river, which include meandering (winding) channel, gravel beds and shoals, ox-bows, earth cliffs and river terraces.

HYDRAULIC CONTINUITY

The relationship between groundwater and surface water flow.

INVERTEBRATE

Animal without a backbone for example insects.

LEACHATE

Liquid containing material in solution, draining from the ground.

LOAD

A measure of the material carried by a river either in suspension or as dissolved material.

MAIN RIVER

Some, but not all, watercourses are designated as Main River. Main River status of a watercourse must first be approved by MAFF. The NRA has the power to carry out works to improve drainage or protect land and property against flooding on watercourses designated as Main River.

MAJOR AQUIFER

Water bearing rocks which are capable of yielding significant volumes of groundwater due to its high permeability and porosity.

MARGINAL

At the water's edge

MINOR AQUIFER

Water bearing rock of limited extent, capable of supporting medium/small abstractions.

NON AQUIFER

Rock of low permeability containing little or no groundwater (may support very limited abstractions).

OCHRE

Iron based orange discolouration.

PASTURE

Semi-improved and improved grazed grassland.

POOL

A deep slowing flowing section of a river or stream.

PRECIPITATION

The total amount of water which falls as rain, hail, or snow expressed as mm or inches of rainfall over a specified period.

RETURN PERIOD

The frequency within which, on average, an event of a certain severity may be expected to return (expressed in years).

RIFFLE

A shallow, but fast flowing part of a river or stream.

RIPARIAN

Of, or on, the banks of a river.

RIPARIAN OWNER

Owner of land abutting a river or lake. Normally riparian owners own the bed of river to the mid point of the channel.

RIVER CORRIDOR

Stretch of river including its banks and the land close by.

SALMONIDS

Fish classified as belonging to the Salmon family, such as Salmon, Trout and Char.

SHOAL

A sand and/or gravel deposit at the edge of or within river channel.

STRATA

Layer of rock.

SPATE

Very high flows, usually associated with rain storms and often cause flooding. Spate flows naturally cleanse the river channel.

TERRACE

A raised flat area cut out of a hillside by the action of the river.

TOPOGRAPHY

Physical features of a geographical area.

TRANSFER STATION (Waste Disposal)

A licensed depot where controlled waste is stored and sorted for disposal or recycling.

WATER TABLE

The surface of a body of groundwater within the underground strata. The water table will fluctuate as a result of natural or artificial causes.

ABBREVIATIONS

AOD	-	Above ordnance datum
CSO	-	Combined Sewer Overflow
DOE	-	Department of the Environment
EC	-	European Community
ESA	-	Environmentally Sensitive Area
EQS	-	Environmental Quality Standard
GMPTE	-	Greater Manchester Passenger Transport Executive
HMIP	-	Her Majesty's Inspectorate of Pollution
IPC	-	Integrated Pollution Control
LPA	-	Local Planning Authority
MAFF	-	Ministry of Agriculture Fisheries and Food
MBC	-	Metropolitan Borough Council
MCC	-	Manchester City Council
NNR	-	National Nature Reserve
NWC	-	National Water Council
NWW Ltd	-	North West Water Limited
QSL	-	Quality Survey Limit
RE	-	River Ecosystem
RQO	-	River Quality Objective

SBI	-	Site of Biological Importance
SPA	-	Special Protection Areas
SSSI	-	Site of Special Scientific Interest
STW	-	Sewage Treatment Works (also referred to as Waste Water Treatment Works)
SWQO	-	Statutory Water Quality Objectives
UDP	-	Unitary Development Plan
WML	-	Waste Management Licence
WRA	-	Water Resources Act

RIVER ECOSYSTEM CLASSIFICATION

The Surface Waters (River Ecosystem) (Classification) Regulations 1994, SI 1994 No. 1057, prescribe a system for classifying the quality of rivers and canals, to provide the basis for setting statutory water quality objectives (WQOs) under Section 83 of the Water Resources Act 1991 in respect of individual stretches of water.

The River Ecosystem Classification comprises five hierarchical classes, in order to decreasing quality: RE1, RE2, RE3, RE4 and RE5. The criteria which samples of water are required to satisfy are set out, for ease of reference, in the Table below.

Class	Dissolved Oxygen	BOD (ATU)	Total Ammonia	Un-ionised Ammonia	pH	Hardness	Dissolved Copper	Total Zinc
	% saturation 10 percentile	mg/l 90 percentile	mg N/l 90 percentile	mg N/l 95 percentile	Lower limit as 5 percentile; upper limit as 95 percentile	mg/l Ca Co ₃	ug/l 95 percentile	ug/l 95 percentile
RE1	80	2.5	0.25	0.021	6.0 - 9.0	≤ 10 >10 and ≤ 50 > 50 and ≤ 100 >100	5 22 40 112	30 200 300 500
RE2	70	4.0	0.6	0.021	6.0 - 9.0	≤ 10 >10 and ≤ 50 > 50 and ≤ 100 >100	5 22 40 112	30 200 300 500
RE3	60	6.0	1.3	0.021	6.0 - 9.0	≤ 10 >10 and ≤ 50 > 50 and ≤ 100 >100	5 22 40 112	300 700 1000 2000
RE4	50	8.0	2.5	-	6.0 - 9.0	≤ 10 >10 and ≤ 50 > 50 and ≤ 100 >100	5 22 40 112	300 700 1000 2000
RE5	20	15.0	9.0	-	-	-	-	-

**PROPOSED RIVER ECOSYSTEM (RE)
RIVER QUALITY OBJECTIVES (RQOs) AND
LONG TERM OBJECTIVES FOR BIOLOGICAL WATER QUALITY**

Watercourse	Reach	Proposed Short-Term RE RQO	Proposed Long-Term RE RQO	Proposed Long-Term Objective for Biological Water Quality
Goyt	QSL Errwood Reservoir to Edward Hall site	RE1 (1995)	RE1	B1
Goyt	Edward Hall site to Black Brook confluence	RE4 (1995)	RE3	B3
Goyt	Black Brook confluence to River Sett confluence	RE4 (1995)	RE3	B3
Goyt	River Sett confluence to Kruger Tissue site	RE4 (1995)	RE3	B3
Goyt	Kruger Tissue site to Strines Textiles site	RE3 (1995)	RE3	B3
Goyt	Strines Textiles to River Etherow confluence	RE4 (1995)	RE3	B3
Goyt	River Etherow to confluence with River Tame	RE3 (1995)	RE3	B3
River Goyt Tributaries				
Randall Carr Brook	QSL at Combs Reservoir to Cadster	RE2 (1995)	RE2	B2
Randall Carr Brook	Cadster to confluence with River Goyt	RE2 (1995)	RE2	B2
Todd Brk	QSL Browside Clough to River Goyt	RE2 (1995)	RE1	B1
Black Brk	QSL at A625 to Chapel-en-le-Frith STW	RE2 (1995)	RE2	B2
Black Brk	Chapel-en-le-Frith STW to River Goyt	RE4 (1997)	RE3	B3

QSL - Quality Survey Limit

Contd/.....

Warm Brk	QSL at Chapel-en-le-Frith to Black Brook	RE3 (1995)	RE3	B3
Wash Brk	QSL at Roych Brook to Black Brook	RE1 (1995)	RE1	B2
River Sett	QSL Coldwell Clough to Brookhouse Brook	RE2 (1995)	RE2	B1
River Sett	Brookhouse Brook to River Goyt	RE2 (1995)	RE2	B2
River Kinder	QSL at Kinder Reservoir to River Sett	RE2 (1995)	RE1	B1
Rowarth Brook	QSL at Rowarth STW to River Sett	RE2 (1995)	RE2	B2
Hollywood End Brook	QSL at Mill Brow to confluence with River Goyt	RE2 (1995)	RE2	B2
River Etherow	QSL Black Clough to Outlet Bottoms Res	RE2 (1995)	RE1	B1
River Etherow	Outlet Bottoms Reservoir to Glossop Brook	RE3 (1995)	RE2	B2
River Etherow	Glossop Brook confluence to River Goyt	RE3 (1995)	RE3	B3
Shelf Brook	QSL Yellowstacks Brook to Old Glossop	RE2 (1995)	RE2	B2
Glossop Brook	Old Glossop to confluence with River Etherow	RE2 (1995)	RE2	B2
Hurst Brook	QSL Hurst Reservoir to Glossop Brook	RE2 (1995)	RE2	B2
Hatherlow Brook	QSL at Romiley to confluence with River Goyt	RE4 (1995)	RE3	B3
Torkington Brook	QSL at Hazelbank to confluence with River Goyt	RE3 (1995)	RE2	B2
Poise Brk	QSL above Torkington Park to Ochreley Brook	RE4 (1995)	RE3	B3
Poise Brk	Ochreley Brook confluence to River Goyt	RE4 (1995)	RE3	B3
Ochreley Brook	QSL Torkington Road to Poise Brook	RE4 (1995)	RE3	B3

Canal	Reach	Proposed Short-Term RE RQO	Proposed Long-Term RE RQO	Proposed Long-Term Objective for Biological Water Quality
Peak Forest	QSL at Whaley Bridge to junction with Macclesfield Canal	RE2 (1995)	RE2	-
Peak Forest (Buxworth Branch)	QSL at Buxworth to junction with Peak Forest Canal	RE5 (1995)	RE4	-
Peak Forest	Junction with Macclesfield Canal to junction with Ashton Canal	RE5 (1995)	RE4	-
Macclesfield	QSL at junction with Peak Forest Canal to Cowley	RE4 (1995)	RE4	-



NRA

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