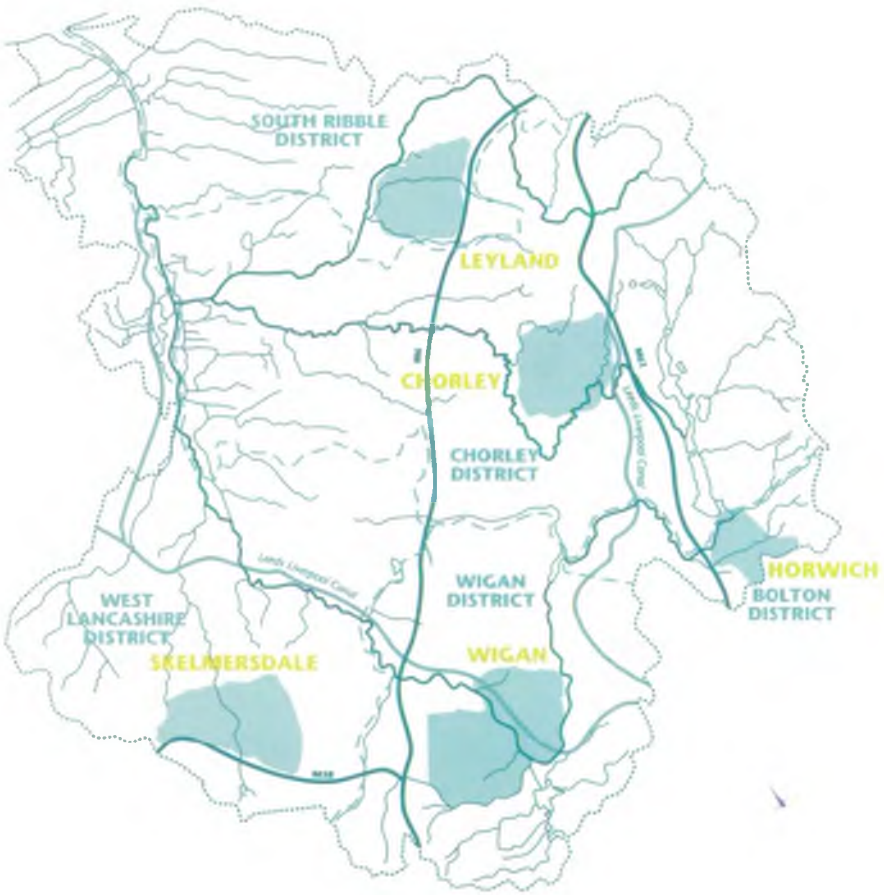
local environment agency plan

DOUGLAS

CONSULTATION REPORT

NOVEMBER 1998



ENVIRONMENT AGENCY

NORTH WEST REGION

Richard Fairclough House
Knutsford Road
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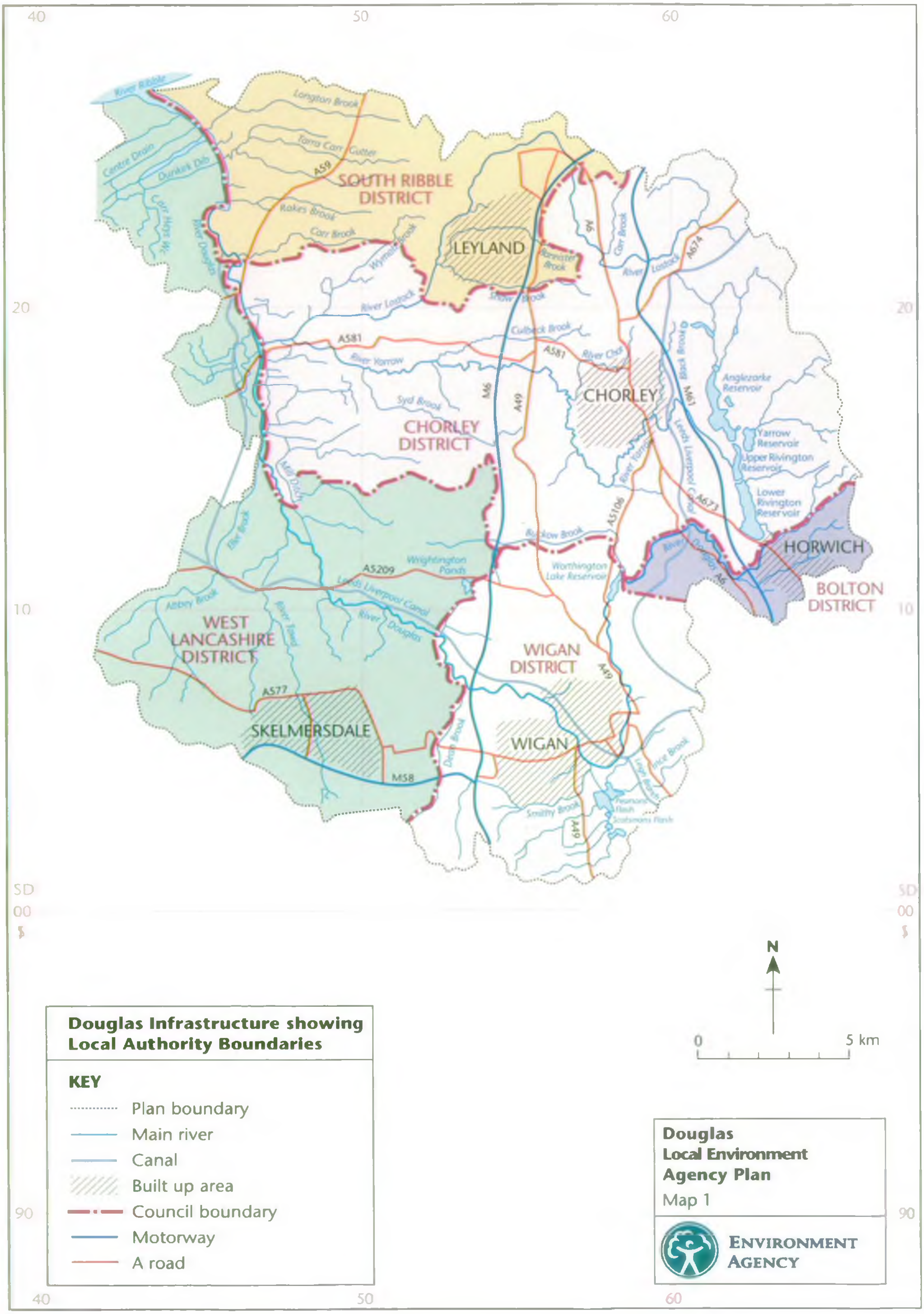
ENVIRONMENT AGENCY



River Ribble
Longton Brook
Tarra Carr Gutter
Centre Drain
Dunkirk Dib
A59
SOUTH RIBBLE DISTRICT
Rakes Brook
Carr Brook
River Douglas
LEYLAND
Bannister Brook
Shaw Brook
River Lostock
A674
Carr Brook
M6
River Lostock
A581
River Yarrow
Culbeck Brook
River Chor
Syd Brook
CHORLEY
CHORLEY DISTRICT
A49
M61
Black Brook
Anglezarke Reservoir
Yarrow Reservoir
Upper Rivington Reservoir
Lower Rivington Reservoir
Leeds Liverpool Canal
A673
A5106
Mill Ditch
Eller Brook
Buckow Brook
Worthington Lake Reservoir
HORWICH
BOLTON DISTRICT
A5209
Wrightington Ponds
Abbey Brook
Leeds Liverpool Canal
River Douglas
WEST LANCASHIRE DISTRICT
River Tawd
WIGAN DISTRICT
A577
SKELMERSDALE
WIGAN
M58
Dean Brook
Smithy Brook
Ince Brook
Pearsons Flash
Scotsmans Flash
40
50
60
20
10
SD 00
90
N
0
5 km
Douglas Infrastructure showing Local Authority Boundaries
KEY
Plan boundary
Main river
Canal
Built up area
Council boundary
Motorway
A road
Douglas Local Environment Agency Plan
Map 1
Environment Agency

FOREWORD

I am very pleased to introduce the Local Environment Agency Plan Consultation Report for the Douglas area. This plan consultation document forms part of a new and innovative approach to identifying, prioritising and solving local environmental issues which are related to the Agency's functions.

The plan identifies practical environmental issues within the Douglas area and seeks to develop integrated and holistic strategies and actions to secure environmental improvements. Whilst the plan will be the focus for the Agency's actions, it also has a role in influencing and involving the public, communities, Local Authorities, business and industries and other organisations in their actions and partnerships, which will be essential to ensure success.

I invite you to consider the content of this document and to raise any issue, comment or suggestion that you feel may assist us in making a positive difference to your local area. The consultation period ends on Friday 26th February 1999.

P C GREIFENBERG
AREA MANAGER
CENTRAL

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NB. Please note that on all maps Scotsmans Flash should read Scotmans Flash

CONTENTS

MAP CONTENTS

DOUGLAS ISSUE LIST

1 Long sections of the Area's rivers have been degraded. This has led to a loss of wildlife and a weak landscape character.

2 Adverse impacts of Robin Park Development on the environment.

3 Increase in the number of pollution incidents caused by the building industry.

4 Adverse impact of discharges from North West Water (NWW) Ltd Wastewater Treatment Works and Sewerage Systems on water quality.

5 Adverse impact of drainage from Summersales Colliery on water quality in Smithy Brook.

6 Adverse impacts on the environment from the Welch Whittle deep mine site.

7 Potential adverse environmental impacts of development at Gillibrands, Chorley.

8 The utilisation of waste to energy to reduce emissions to the environment at Kirkless and Ulnes Walton Landfill Sites.

9 Adverse impact of Bradley Hall, Kirkless and Moss Side Industrial Estate drainage on the environment.

10 Adverse impacts of development at Royal Ordnance Site, Euxton on the environment.

11 The impact of barriers restricting the distribution of fish in the Douglas area.

12 The environmental status of Wigan Flashes.

13 Access sites for river maintenance to prevent flooding.

14 Promotion of existing and new recreational opportunities in the Douglas area, along the Leeds Liverpool Canal and Wigan Flashes (see also Issue 12)

15 The lack of knowledge of our built heritage associated with rivers means that it is deteriorating through lack of maintenance or inadvertently being destroyed by routine operations or inappropriate development. Its potential to attract recreational users and provide an educational source is also not being realised.

16 Failure to comply with Water Quality and impact on water quality due to agricultural activities.

17 Failure to comply with Water Quality Objectives and impact on water quality due to discharges from private sewerage works.

SECTION 1 THE LEAP PROCESS & ISSUES

1.1 VISION FOR THE DOUGLAS AREA

The vision for the Douglas area in 25 years, providing an improved local environment would be to have:

An area where the treating, keeping, movement and disposal of controlled waste will be regulated so as to prevent pollution of the environment, harm to human health, and serious detriment to amenity. Controlled waste in the area will be managed in accordance with the principles of sustainability. In particular by reducing the amount of waste produced, making the best use of waste that is produced, and choosing waste management practices which minimise the risk of immediate and future environmental pollution and harm to human health.

An area where clean up of contaminated land has taken place and the land returned to use for the benefit of the local communities.

An area where the air quality is of a consistently high standard to support amenity without detriment to health, this being particularly important around urban zones, industrial belts and along transport routes. Contributing to this will have involved the full implementation of a sustainable transport strategy presenting economically viable alternatives to car use.

An area where water quantity, quality and riparian habitat, specifically in the Rivers Douglas, Lostock and Yarrow, have been improved and maintained to a consistent, high standard in which fish can live and breed successfully.

An area where the watercourses and estuarial waters are attractive and clean, supporting a wide range of recreational and amenity uses, such as angling, water sports and walking. Well maintained landscapes that have their own distinct local character. An area where those features of the natural and man made environment that contributes to local character and our cultural heritage are valued and retained.

An area which achieves the right balance between the needs of the environment and those of water users. Where there is no shortage and the wise use of water to meet essential supplies and needs and also protect and enhance the environment.

An area where the risk of flooding to property is minimised and the design of flood defences accommodates and seeks to enhance where possible, species, their habitats and access to the watercourse for recreational pursuits.

An area where education has raised awareness of the ecological features such as wildlife habitats, landscape, archaeological and historic features. Their protection, promotion and enhancement will be endorsed by legislation and will have been adopted as policy through local development planning process.

These improvements will be achieved in partnership with industry and the farming community, riparian owners, local interest groups and the general public.

1.2 THE ENVIRONMENT AGENCY

Our Vision is:
'A better environment in England and Wales for present and future generations.'

Our Aims are:
To achieve major and continuous improvement in the quality of air, land and water.
To encourage the conservation and enhancement of our natural resources, landscape, heritage, animals and plants.
To make the most of pollution control and river-basin management.
To promote the use of inland and coastal waters for recreation.
To provide effective defence and warning systems to protect people and property against flooding from rivers and the sea.
To reduce the amount of waste by encouraging people to re-use and recycle their waste.
To improve standards of waste disposal.
To manage water resources to achieve the proper balance between the Country's needs and the environment.
To work with other organisations to reclaim contaminated land.
To improve and develop salmon and freshwater fisheries.
To conserve and improve river navigation.
To tell people about environmental issues by educating and informing.
To set priorities and work out solutions that society can afford.

We will do this by:
Being open and consulting others about our work;
Basing our decisions around sound science and research;
Valuing and developing our employees; and
Being efficient and businesslike in all we do.

The Environment Agency has a wide range of duties and powers relating to different aspects of environmental management. It is required and guided by Government to use these duties and powers in order to help achieve the objective of sustainable development. The Brundtland Commission defined sustainable development as '.... development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.

At the heart of sustainable development are the integration of human needs and the environment within which we live. Indeed the creation of the Agency itself was in part recognition of the need to take a more integrated and longer-term view of environmental management at a national level. The Agency therefore has to reflect this in the way it works and in the decisions it makes.

Taking a long-term perspective will require the Agency to anticipate risks and encourage precaution, particularly where impacts on the environment may have long-term effects, or when the effects are not reversible. The Agency must also develop its role to educate and inform society as a whole, as well as carrying out its prevention and enforcement activities, in order to ensure continuing protection and enhancement of the environment.

Although the Agency only has duties and powers to protect some environmental resources, it will need to contribute to other aspects of environmental management even if these are, in the first instance, the responsibility of others. The Agency can only do this effectively by working in partnership with and through others in order to set common goals and to achieve agreed objectives.

Most of the UK's environmental legislation originates from the European Union. To date there have been five EC Environmental Action Programmes which have collectively given rise to several hundred pieces of legislation of relevance to environmental protection, one of the most recent being the Directive on Integrated Pollution Prevention and Control. A number of other directives are currently under consideration, covering issues such as water management, air quality, and the management of waste using landfill.

The Agency also has to work in a wider international context because it is now generally accepted that environmental changes are occurring on a global scale. Individual countries contribute to these changes, and respond to them, in different ways. The Agency's long-term strategy therefore has to reflect these global issues, and it has to be delivered within the framework of international and national commitments that have been developed to address them.

Perhaps the major international issue is that of climate change. The UK is a contributor to the emission of gases such as carbon dioxide into the atmosphere, which are believed to contribute to long-term climate changes. The UK will also be affected in a complex way as and when the climate does change. It is therefore a signatory to the Framework Convention on Climate Change, as agreed at the Rio Summit in 1992, and is taking an active part in international negotiations to obtain commitments beyond the year 2000 for credible, effective, and achievable reductions of greenhouse gas emissions.

Another outcome of the United Nations 'Earth Summit' held in Rio de Janeiro in 1992 was agreement by governments that, in order to solve global environmental problems, local action is crucial: we must all therefore think globally but act locally. The Local Agenda 21 initiative set out actions needed to achieve sustainable development, including the need to make clear the links that exist between local life-styles and the use of resources. In the UK plans have now been formulated by local government and local communities to identify and address a wide range of environmental issues including natural resource use, pollution, health, local amenity and quality of life. These programmes set out long-term solutions that take account of global implications, such as the use of resources that affect the global environment and thus local communities in other parts of the world.

The Agency is committed to a programme of Local Environment Agency Plans (LEAPs) in order to produce a local agenda of integrated action for environmental improvement. These LEAPs will also allow the Agency to deploy its resources to best effect and optimise benefit for the local environment.

1.3 THE LEAP PROCESS

Introduction

The Environment Agency is committed to delivering environmental improvement at the local level. One of the ways to do this is through the preparation and actions arising from Local Environment Agency Plans. These plans reflect the close contact with our stakeholders and will contribute towards achieving sustainable development.

The process of drawing up these plans involves close consultation with all interested parties. It promotes the effective, accountable and integrated delivery of environmental improvement at the local level. The plans will translate policy and strategy into delivery on the ground and will result in actions, either for the Agency to fulfil, or for others to undertake through influence and partnership. We believe the process benefits the local community by influencing and advising external decision-makers and public opinion.

In the North West Region, we will complete public consultation on ten plans in 1997/98 and on all plans by 1999.

Definition

A 'LEAP' is the Environment Agency's integrated local management plan, for identifying and assessing, prioritising and solving local environmental issues related to the Agency's functions, taking into account the views of the Agency's local customers. The outcome of the process is a local agenda of integrated action for environmental improvement in order to optimise benefit for the local environment.

The Scope of LEAPs

The Agency is the competent authority for managing and regulating the water environment, waste licensed sites and major industrial processes. We have duties to protect and enhance bio-diversity in everything we do, to protect landscape and heritage, and to promote inland navigation and water based recreation.

A LEAP cannot manage each and every matter related to the environment. We only have the authority and resources to plan for those matters which are related to our statutory duties and responsibilities. However, where there are common areas of environmental concern LEAPs attempt to influence third parties to plan and act in ways that support our Environmental Strategy. The boundary between resolution and influencing is not always clear cut. In deciding on which issues to address, it will be important to consult key external partner organisations, especially Local Authorities.

Delivery

LEAPs are delivered by Area Managers and their staff in close conjunction with key partner organisations and Area Environment Groups. Consultation Reports and Action Plans are important statements of the Agency's commitment to tackle environmental issues in local areas.

Timescales

Published LEAP Consultation Reports must cover all parts of England and Wales by the end of 1999. This is only the first milestone in what will be an ongoing national programme of LEAPs. The LEAPs will be regularly updated, developed and improved, through monitoring, review and consultation.

Each LEAP takes a long-term view of the local area and sets out a five-year plan of action for solving local issues. LEAPs are subject to annual review, the entire process is reviewed every five years and subject to new documentation and consultation.

Key Stages:

The Douglas LEAP Consultation Report

Prepared over the last 8 months, this report identifies issues within the Douglas plan area which the Agency wishes to see resolved. Some of the causes are known and these issues have detailed actions, others are highlighted to key groups for potential partnerships, information or discussion. At the start of a plan, contact with key interested groups is made to inform them of the process and ask for their early thoughts. Later drafts have formed the basis of further discussions to develop solutions to issues. The final draft document is open for three months consultation, the issues are circulated and considered for comment as widely as possible. These plans are available to everyone.

Translation of the draft document into LEAP Plan

In order to produce the LEAP plan, the issues will have to be confirmed with the responsible lead organisation in terms of timescales and allocation of budgets. In some cases solutions are not always possible within the 5 year plan. In these circumstances the actions will be defined as 'future'.

Future Review and Monitoring

Progress on the actions will be monitored and reported on annually, by means of a review document that will be publicly available. The review document will comprise of:

A detailed comparison of planned progress against actual.

Identification of additional actions to maintain progress in the light of changes.

Other new issues which may require consideration.

1.4 THE DOUGLAS LEAP AREA

The River Douglas rises on Rivington Moor at Winter Hill at an elevation of 440metres A.O.D. and terminates at its junction with the River Ribble, some 8 kilometres west of Preston, Lancashire.

The gradient of the River Douglas is such that the river level at Appley Bridge, approximately half way along its length, reduces to a level of 23 metres A.O.D.and to 7.6 metres A.O.D.at Wanes Blades Bridge which is recognised as being the tidal limit.

The shape of the catchment is generally circular in plan. The River Douglas itself rises in the South East of the area. The River Yarrow, which is a major tributary, drains the central portion of the area and the River Lostock, being the main tributary of the River Yarrow, drains the northern quarter.

The total catchment area of the Douglas system measured above its confluence with the River Ribble is approximately 440 square kilometres. The lower and middle reaches of the catchment are predominantly agricultural but sizeable urban areas have been developed at Leyland and Chorley within the designated area of the Central Lancashire New Town.

The flood plain areas of the Lower Douglas and Yarrow contain land of exceptional quality and high agricultural value, much of which has been improved steadily over the years by a general lowering of the water table, brought about by an efficient system of pumped drainage.

The upper reaches of the area fall broadly into two categories:

The moorland areas which discharge run-off to the water supply reservoirs at Rivington and subsequently outflow to both the River Douglas and the River Yarrow.

The urban areas of Wigan, Appley Bridge, Shevington, Standish, Skelmersdale, Ormskirk and Burscough. Development within these areas has been increasing steadily over the last decade and the construction of Skelmersdale New Town has added considerably to the overall urban expansion.

The main tributaries within the system are:
Upper Catchment - Pearl Brook, Buckow Brook, Ince Brook, Smithy Brook

Middle Catchment - River Tawd, Eller Brook, New Reed Brook, River Yarrow, River Lostock and the pumped areas of Mawdesley, Rufford and Croston.

Lower Catchment - Carr Brook, Raikes Brook, Tara Carr Gutter and Longton Brook.

The River Douglas area is well served by road and rail links, both locally and nationally. The M6 Motorway and the main west coast railway line run centrally through the area in a north - south direction, with the M61 Motorway linking the M6 with Manchester to the east of Chorley. At the southern end of the area the M58 Motorway links the M6 near Wigan to Skelmersdale and Liverpool. The recent development of the M65 (Blackburn Southern Bypass) now links Preston South with East Lancashire.

The area to the west of the M6 is generally linked by smaller roads, although the A59 Preston to Liverpool runs through the north west of the area in the Tarleton and Burscough areas. Rail links in this area include the Wigan to Southport line, which runs along the Douglas Valley to Parbold and then onto Southport and the Liverpool to Preston Line, which runs north easterly through the area from Burscough to west of Leyland.

Within the area there are diverse ranges of economic activities and recreational pursuits that can and do have an impact on the environment. These range from process industries, such as Heinz (a large employer in the area) to waste management with a significant number of landfill sites and recycling stations, and also recreational areas such as Haigh Hall, Yarrow Valley and Wigan Flashes.

1.5 PROTECTION AND PARTNERSHIP

Introduction

Much of the day to day operational work of the Agency is aimed at protecting the environment through education, pollution prevention and environmental improvement.

This important work does not feature in the LEAP because the plan is primarily intended to address specific environmental problems and these are highlighted within the section detailing issues. Much of this routine work is undertaken by the Agency to fulfil its duties and responsibilities. Examples include routine inspection at landfill sites to ensure licence conditions are being complied with, anti-poaching activities by Agency bailiffs, routine river sampling to detect trends in water quality and site visits to factories/sewage works to ensure compliance with discharge authorisations.

However, the Agency recognises that it is not the only body operating in the field of environmental protection and improvement and that our responsibilities often overlap with those of other organisations.

Where appropriate the Agency will work with partners to achieve environmental protection and improvements. Much of this co-operation goes on at a day to day level between officers in the field and does not require formal establishment.

Examples include negotiation between Agency staff and representatives of individual companies over programmes of investment to improve environmental performance, or assistance afforded by the Police in difficult enforcement action.

However, in some cases the Agency does get involved in more formal partnerships and some of those which are relevant to this LEAP area are outlined below. Others are mentioned under the relevant issues in Section 1.6 of this plan.

Liaison with Local Planning Authorities (LPAs)

The Environment Agency is taking a pro-active role in the land-use planning system. We have recently published our national document 'Liaison with Local Planning Authorities 1997'. The document explains our role and contribution to the land use planning system.

Past development has had a major influence on shaping the area and the planning system plays an important role in protecting much of its special character. New development has to be carefully considered, to recognise both potential adverse effects, as well as the benefits, change can have on the environment. We consider LEAPs to be an important part of the on-going dialogue with LPAs to foster partnerships and identify issues, where environmental problems and opportunities can be most actively pursued.

Local Perspective - Links between LEAPs and Land Use Planning

Planning policy within the Plan area is guided by Regional Planning Guidance (RPG) for the North West Note 13, April 1996. These documents set out the strategic planning framework for the Region, highlighting development pressures and the development framework for such issues as the Environment, the Economy and Housing.

The link between Development Plans and LEAPS is most important. Section 54a of the Town and Country Planning Act 1990 indicates that decisions on development proposals should be made in accordance with development plans unless material considerations indicate otherwise. The recognition of LEAPs in development plan preparation is essential, as certain LEAP issues could have an impact on future land use planning.

The plan area in planning terms is administered by a number of Local Planning Authorities. These are:
Wigan Metropolitan Borough Council
South Ribble Borough Council
Chorley Borough Council
West Lancs District Council
Bolton Metropolitan Borough Council
Lancashire County Council

Each of these LPAs is in the process of preparing, or has in place a development plan. Due to the Plan boundary being based on a catchment no one Council boundary is wholly contained within this plan area.

The Plan Area
Table 1 indicates the current state of development plan preparation within the area. The table highlights current LPA development plan policies which protect our interests. There will be further opportunities for the LPAs and the Agency to highlight designations that will support actions in this LEAP and potential areas for enhancement.
From the above, the Agency seeks to ensure the following policy objectives will be translated into all land-use planning policy and we look to develop our partnership roles to protect and enhance the environment.

Development Policy Objectives for Local Authority Development Plans and Development Control.
Flood Defence

The objectives of the Agency's floodplain policies are to ensure that:

Development should not take place that has an unacceptable risk of flooding, leading to danger to life, damage to property and wasteful expenditure on remedial works;

Development should not create or exacerbate flooding elsewhere;

Development should not take place which prejudices possible works to reduce flood risk;

Development should not cause unacceptable detriment to the environment;

Natural floodplain areas are retained and, where practicable, restored in order to fulfil their natural functions.

Water Quality

To protect and improve the quality of surface waters and groundwaters:

By ensuring new development complies with the Policy and Practice for the protection of Groundwater;

By ensuring new development does not cause water pollution via discharge points, and is served by satisfactory arrangements for the disposal of foul sewage, trade effluent and contaminated surface water;

By encouraging where there are sewage treatment capacity problems causing premature and high frequency overflows, new development to be phased to coincide with improved infrastructure;

By ensuring appropriate development complies with the Control of Pollution (Silage, Slurry, Agricultural Fuel Oil) Regulations 1991 and the MAFF Codes of Good Agricultural Practice for the Protection of water, soil and air;

By ensuring leachate and drainage is controlled and monitored from contaminated land sites;

By ensuring surface water disposal systems are protected, maintained and wrong connections are avoided.

Water Resources

To protect and manage the amount of surface water and groundwater resources to achieve the right balance between the needs of the environment and those of abstractors;

By promoting the incorporation of suitable water efficiency measures;

By ensuring development can be or will be served by an adequate means of water supply which will not adversely affect existing users, river flows, water quality, agriculture, fisheries, amenity or nature conservation.

Conservation and Enhancement of the Water Environment

To protect, conserve and enhance areas of aquatic value and other important elements of the water environment:

By highlighting the areas of the water environment, including river corridors which are, or have the potential to be of value;

By discouraging development which would have an adverse impact on the nature conservation, landscape, heritage, fisheries, recreation or amenity value of watercourses, ponds and wetlands or on the land physically and visually linked to them;

By siting development away, wherever possible, from river corridors;

By seeking to ensure development proposals protect and enhance on-site features and where development is accepted because of overriding economic or social considerations, mitigation and compensatory measures are provided, to ensure no net loss of environmental value.

By encouraging, where opportunities arise, recreational opportunities and the restoration of river corridors which have been degraded by past development.

Waste Disposal, Mineral Operations and Contaminated Land Sites

To ensure waste disposal, mineral operations and contaminated land redevelopment does not cause pollution or harm to human health:

By ensuring where schemes are not controlled by the Environmental Protection Act 1990, adequate measures will be implemented to control and monitor water pollution and landfill gas,

By encouraging compliance with the Government's National Waste Management Strategy;

By encouraging the re-use of contaminated land sites where the degree and nature of the contamination has been assessed and appropriate measures to protect the environment incorporated.

Air Quality

To protect air quality:

By ensuring certain development processes where schemes are not controlled by the Environmental Protection Act 1990 will not have an adverse effect on air quality;

Help the Government deliver its Air Quality Strategy;

Ensure emissions from the major industrial processes to the atmosphere are reduced;

Ensure specific emissions of sulphur dioxide and oxides of nitrogen, which contribute to acid rain, are reduced;

Discourage the use of solvents in industry, which contributes to the production of ozone, the major photochemical pollutant; and

Set an example in reducing emissions from vehicles by reducing our own mileage and increasing the use of public transport.

TABLE 1
CURRENT STATE OF DEVELOPMENT PLAN WITHIN THE DOUGLAS LEAP AREA

DEVELOPMENT PLAN NAME & STATUS	LPA Plan Policies which aim to protect the environment (their plan policy references shown)			
	AIR, WATER QUALITY AND WATER RESOURCES	FLOOD DEFENCE	FISHERIES RECREATION & CONSERVATION	MINERALS, WASTE DISPOSAL & CONTAMINATED LAND
Lancashire CC - Adopted Structure Plan - February 1997	Policy 13, 18, 70	Policy 14, 21	Policy 19, 25	Policy 62, 64, 66, 69
Lancashire CC Deposit Minerals and Waste Local Plan	Policy 21, 22	23	Policy 3, 20, 24	-
West Lancashire District Council Deposit Local Plan - Inquiry ended December 1997	P1, P2, P3, U2, U3	P6, P7	LN12, CZ.1, CZ.2	P4
Chorley Borough Council Adopted Local Plan - January 1997	EN23, 24, 26	-	EN3, L9	EN22
South Ribble District Council Deposit Local Plan - Inquiry ended January 1997	EN22	ENV21	EBA2	N/A
Bolton MBC Unitary Development Plan - Adopted December 1995	CE7	-	CE16/4, R4/1, CE17	M2/1, WD4, WD3/1
Wigan MBC Unitary Development Plan - Adopted January 1996	EN1, EN3	-	EN2, EN5a, EN5b, EN7h, L4	M3A, B, C, D, E, M6, WD1, WD1c

PARTNERSHIPS

Angling Clubs
There is a large number of Angling Clubs in the Douglas area fishing canals, still waters and the River Douglas. Much work is done in partnership with Angling Clubs to protect and improve the angling venues in the area.

Boundary Brook - Giants Hall Partnership
The area has many spoil heaps with a network of footpaths and bridleways. Environmental improvement schemes to improve public amenity access and clean up campaigns have been initiated in partnership with other organisations. These partnerships have included Groundwork, Lancashire Wildlife Trust, British Horse Society, Wigan Metropolitan Borough Council and RJB Mining.

English Heritage
Countryside Commission
Sports Council
English Nature
The Agency consults with each of these organisations on matters concerning Sites of Special Scientific Interest (SSSI).

Other Local Authority Departments
Other departments consulted on aspects of the Agency's work include: Environmental Health, Public Rights of Way and Access, Tourism, Drainage, Ranger Services, Ecologists and Archaeologists. This liaison occurs at County, Borough and District level. Strategic waste advice is also provided by the Agency through inputs to the Local Waste Management Plans in Local Authorities.

Local Agenda 21
The lead in developing Local Agenda 21 is taken by Local Authorities. The Local Authorities in Lancashire are developing Local Agenda 21 initiatives and meet quarterly to exchange ideas and information. The Agency also has responsibilities with regard to sustainable development, and joins with the Local Authorities at their liaison meetings to assist in pursuing the goal of sustainable development.

Education Establishments
The Agency provides education packs for schools and colleges covering areas of its work.

Site Emergency Plans
As part of the County Council's emergency planning procedures, certain industrial sites have specific emergency plans. The Agency is involved in these plans to deal with any potential pollution problems that may arise. Exercises designed to test and improve procedures are held regularly, and include staff from the Agency.

The Fire Service and Pollution Incidents
The Agency is working closely with Lancashire Fire Service in providing a first line pollution prevention service at road traffic accidents.

The Fire Service is normally first on the scene at road accidents. This gives them a unique opportunity to deal with polluting spillages before they reach a watercourse. The Fire Brigade has agreed to undertake this role where practicable and the Agency has provided training and materials such as oil absorbents. The Fire Service will also notify the Agency of any potentially polluting spillages so that Agency staff can be on site to deal with follow-up action.

Highways Agency
Liaison meetings in respect of highways issues.

Annual Conservation Liaison Meeting
Staff from the Agency meets annually with local representatives of conservation organisations. The purpose is to discuss the Agency's annual flood defence maintenance programme and other relevant conservation related issues.

The other organisations represented include English Nature, Lancashire Wildlife Trust and the Royal Society for the Protection of Birds. The Agency also has an annual meeting with the National Trust with a view to working together on matters of mutual interest.

Flood Warning Zones
The Environment Agency takes the lead in the dissemination of Flood Warnings, but other organisations including the Local Authorities and the Police are also involved.

The Environment Agency has also identified sites most likely to suffer from flooding and has put into place systems to give those people living in these areas advanced warnings. The Agency calls these sites Formal Flood Risk Zones. In the Douglas area there are 2 such zones, on the River Yarrow at Croston and River Douglas at Wigan.

In providing the Core Flood Warning service, the Environment Agency makes use of Local Media (TV and Radio), a recorded message system (Floodcall), loud hailers and for the Flood Risk Zones Automatic Voice Messaging. All of these enable the Environment Agency to provide those with property in Flood Warning Zones with advance warning, in order that they can take steps to minimise the impact of flooding.

The Floodcall Message Service mentioned above is a local rate telephone number that is continually updated to provide the public with up to date Flood Warning Information. The telephone number is: 0645 881188

River Valley Initiatives (RVIs)
RVIs bring together local authorities, businesses, community groups and the voluntary sector as well as organisations like the Environment Agency and North West Water, to tackle a broad range of environmental issues in a collaborative way. The Douglas and Yarrow RVI is a combination of public, private and voluntary sectors all working to improving the environment of the Douglas and Yarrow Valley.

Industrial liaison
Routine liaison and progress meetings are held between the Agency and industrialists. For example: North West Water Ltd, waste site operators.

Farming and Wildlife Advisory Group (FWAG)
Liaison as appropriate

Pond Life Project
Liaison in respect of pond issues.

Barn Owl Conservation Group
Liaison in respect of bio-diversity and conservation issues

MAFF Liaison Groups
Liaison in respect of flood defence responsibilities, farming aspects and other Agency interests.

Country Landowners Association
Liaison as appropriate.

National Farmers Union
Liaison as appropriate.

Recreational Organisations
British Canoe Union/ NW Rowing Federation and Ramblers Association.
Ad-hoc meetings to discuss recreational issues.

North West & North Wales Sea Fisheries
Enforces National and European legislation pertaining to sea fisheries and makes local byelaws as appropriate. The area of jurisdiction extends from Cemaes Head in Dyfed to Haverigg Point in Cumbria covering an area 1700 sq nautical miles.

Wigan Flashes User Group
An informal forum for all users of the Wigan Flashes, including anglers, sailors, birdwatchers with appropriate staff from Wigan Metropolitan Borough Council.

1.6 ISSUES AND OPTIONS FOR THEIR RESOLUTION

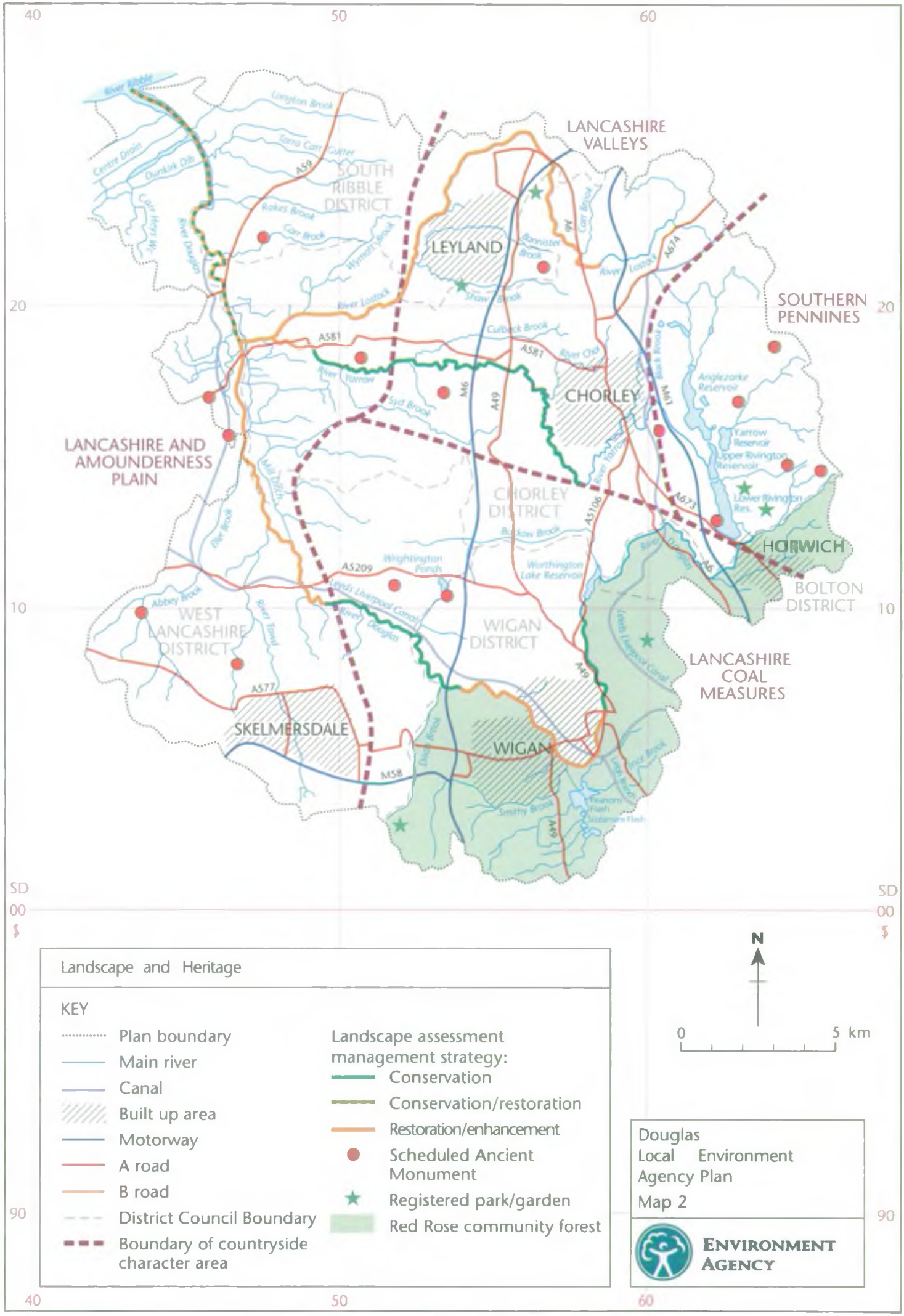
The issues describe some of the challenges that lie ahead. We are seeking your views on how we and others should deal with the identified issues or if there are any more which should be considered for action.

Have all the issues been identified?
Which option is likely to provide the best outcome?
The consultation period extends from 26th November 1998 until 26th February 1999

List of Abbreviations used in tables

The Agency	-	Environment Agency
LA	-	Local Authority
RO	-	Riparian Owner
MAFF	-	Ministry of Agriculture, Fisheries and Food
NWW	-	North West Water Ltd
RSPB	-	Royal Society for the Protection of Birds
BW	-	British Waterways
BCU	-	British Canoeing Union
NFU	-	National Farmers Union
EN	-	English Nature
WDA	-	Waste Disposal Authority
CLA	-	Country Landowners Association
FWAG	-	Farming Wildlife Advisory Group
LWT	-	Lancashire Wildlife Trust
CC	-	Countryside Commission
AMP	-	Asset Management Plan
FRCA	-	The Farming and Rural Conservation Agency
RHS	-	River Habitat Survey
GWK	-	Groundwork Wigan and Chorley
DaY RVI	-	Douglas and Yarrow Valley River Valley Initiative

NB: Organisations listed within the responsibility column are not shown in any order of priority.



Landscape and Heritage

KEY

- Plan boundary
- Main river
- Canal
- Built up area
- Motorway
- A road
- B road
- District Council Boundary
- Boundary of countryside character area

Landscape assessment management strategy:

- Conservation
- Conservation/restoration
- Restoration/enhancement
- Scheduled Ancient Monument
- Registered park/garden
- Red Rose community forest

Douglas Local Environment Agency Plan

Map 2

ENVIRONMENT AGENCY

Issue 1: Long Sections of the area's rivers have been degraded. This has led to a loss of wildlife and a weak landscape character.

Background

Rivers have had a long history of people modifying them for their own needs or to prevent flooding. In this area there have been many pressures on the rivers. To the south and east a combination of coal mining, heavy industry and the growth of towns have led to the degradation of many rivers by culverting them, building right up to the top of the river bank, reinforcing banks or putting the river into a concrete channel. In the north and west it is intensification of agriculture and land drainage that has led to re-sectioning, deepening and straightening of river channels. Cropping right up to the river's edge and grazing stock have also damaged many rivers.

A landscape assessment of the principal rivers in the area revealed that 72% of river corridor landscapes needed either restoring or enhancing. River Habitat Surveys (RHS) carried out at 15 randomly selected sites revealed that over half of the river channels had been obviously, significantly or severely modified. Fisheries surveys have revealed that there are a number of places where the habitat is poor and limiting the fish population.

Effects

Many of the rivers in the LEAP area have had their landscape and wildlife reduced by removing important habitats and reducing their landscape character. Rivers are places of great value to wildlife and fish and form very attractive landscape features. However, many rivers in this area do not live up to this potential and they should be helped to realise it. The Agency is committed to improving the rivers in this area to achieve their potential where opportunities arise and where funding is available. In order to ensure that resources are utilised effectively, we need to identify and prioritise those areas in need of most improvement.

Examples

Specific sites identified in the Douglas LEAP area where fisheries habitat is poor and could be improved include:

River Yarrow

Eccleston - Bank erosion at sites both upstream and downstream of the B5250 (SD 515 179)

Below Croston Weir - gravel limited

Below Birkacre Weir - reasonable gravels, but compacted (SD 573 150)

Below Hallsworth Fold Farm - good gravel but compacted (SD 612 157)

Grundy's Lane, near Heath Charnock (SD 581 143) - lack of juvenile habitat

Common Bank - compacted gravels

River Douglas

Between Parbold and Appley Bridge (SD 494 101 and SD 508 099). Bankside erosion and overhanging vegetation.

River Lostock

Farington Moss. Bank erosion from cattle grazing (SD 534 233)

The Agency's River Landscape Assessment identified the following sections of river as in need of restoration or enhancement. These are illustrated on the Landscape and Heritage Map (Map No.2).

River Yarrow

Chorley to John Wood, Home Farm to River Lostock.

River Lostock

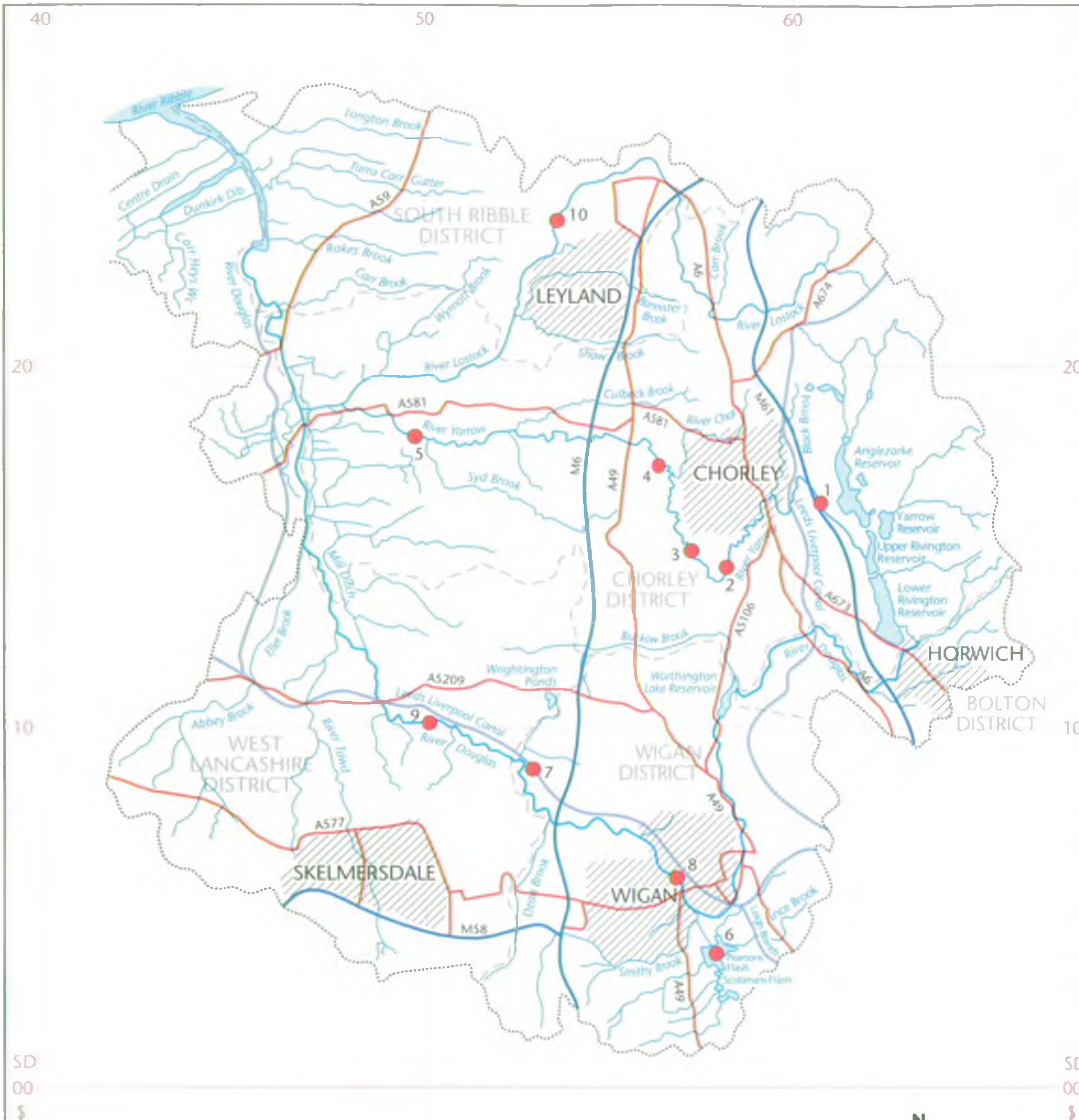
M61 Motorway to the River Douglas.

River Douglas

Water Hayes to Gathurst, Parbold Village to Bank Hall. From Bank Hall to the River Ribble the management strategy was identified as restoration/enhancement.

The number of existing RHS sites within this area are too few to use as a basis for selecting improvement sites. However, using fisheries, landscape and other Agency data we can identify potential sites and then carry out River Habitat Surveys in these areas to identify the most highly modified stretches of river that would be appropriate for restoration.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Use existing data on the river habitat survey, landscape assessment and fisheries surveys and where needed carry out further surveys to identify and prioritise stretches of river to be rehabilitated.	The Agency	A priority list is drawn up and limited resources are spent in the most needy areas first	1998-2003
Carry out appropriate rehabilitation to increase fish habitat and reinforce landscape character in areas identified as a priority	The Agency Groundwork Wigan and Chorley RO Farmers FWAG Angling Clubs MAFF DaY RVI	Creation of habitat for growth of mature bankside vegetation. Improve visual, wildlife and fisheries value. Prevents denudation and creates a buffer zone against farming operations. Improving water quality, natural control of bank erosion and assisting in preventing fly tipping. Increase habitat diversity to restore wetland habitats.	Ongoing
Control and remove Japanese Knotweed and other alien species. Eradicate competition with native species	The Agency	Maintain and increase the diversity of bankside habitat	Ongoing
Survey/Produce a Management plan for Water Voles	The Agency EN LWT	Increase bio-diversity	1998 - 2003



Habitat Improvements

KEY

- Plan boundary
- Main river
- Canal
- Built up area
- Motorway
- A road
- District council boundary
- Issue

1. Hallsworth Fold Farm - issue 1
2. River Yarrow, Grundys Lane - issue 1
3. River Yarrow Below Birkacre Weir - issue 1
4. River Yarrow, Common Bank - issue 7 and 1
5. River Yarrow Below Croston Weir - issue 1
6. Wigan Flashes - issue 12
7. Leeds and Liverpool Canal
8. Robin Park - issue 2
9. River Douglas between Appleby Bridge & Parbold - issue 1
10. River Lostock near Farington

N

0 5 km

Douglas Local Environment Agency Plan

Map 3

ENVIRONMENT AGENCY

40 50 60

Issue 2: Adverse impacts of Robin Park Development Wigan on the environment.

The development of Robin Park would be taking place on contaminated land within the flood plain area. The mobilisation of contaminated material will give rise to deterioration in water quality if not properly managed. Wigan MBC is the lead authority for landfill gas issues. Alfred McAlpine is the developer. The Environment Agency is keen to ensure that no contamination of the River Douglas occurs. The site has been subject to landfilling and is giving rise to significant quantities of landfill gas. A scheme for the management of the gas must be installed and all buildings to be designed to incorporate measures for the prevention of gas ingress.

Additionally the development area is adjacent to River Douglas which is classified as main river in this area and as such acts as a principal conveyor of water in times of high flows. Increased run-off from development within the flood plain will reduce the capacity of the channel. Sustainable Urban Drainage (SUDs) methods reduce flooding implications by reducing immediate discharge into watercourses thus maintaining flow regime. Alternative provision would need to be made for this type of development to fall in line with the Environment Agency's flood defence policies.

Robin Park development is within a Formal Flood risk zone. During the Easter 1998 floods in Central England difficulties in warning mobile populations, such as marinas, and retail parks were factors that contributed to the loss of five lives. Evacuation plans need to be developed by the Local Authority to prevent such an occurrence happening at the Robin Park development.

The channel at this point is very straight and supports little habitat. Invasive species out-compete native plants along this stretch. With meanders and off-river support areas for fish incorporated into the design work, the provision of habitat would be enhanced.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Complete investigations and prevent contamination of watercourse	Developer (Wigan MBC)		1998-1999
Influence design of phase 2 in association with the developer, agree habitat enhancement measures	Developer The Agency	Increase wildlife and fisheries habitat potential. Improve watercourse aesthetics. Reduce impact on flood plain to minimise impact on flood risk area	1998-1999

Constraints: Pressure for development land. Availability of cost beneficial solutions. Current development timescales / programme.

Issue 3: Increase in the number of pollution incidents caused by the construction industry.

Generally pollution incidents are reducing year-on-year. Unfortunately within the construction industry the actual number of reported pollution incidents is on the increase.

Due to the large presence of house-builders in the Douglas plan area the Agency is implementing proactive targeting of these companies. This targeting will involve site visits and raising awareness of the code of practice for this industry sector for the promotion of environmentally safe working practices and making use of Agency media, such as video tape "Building a Cleaner Future" and distribution of "Site Right Action Pack"

The objective of the targeting campaign is to ensure the use of sustainable building practices within the construction industry, resulting in environmental protection.

SOLUTIONS	RESPONSIBILITY	BENEFITS	TIMESCALE
Agree way forward with house builders locally e.g Pilot areas	The Agency House Builders Federation Developers	Pollution prevention. Advice on sustainable sources for construction materials enforces vision of sustainable development.	1998-2003

Constraints: Willingness of construction industry to take on board advice.

Issue 4: Adverse impact of discharges from North West Water (NWW) Ltd Wastewater Treatment Works and Sewerage Systems on water quality.

Water Service Company capital expenditure is allowed by OFWAT following discussions involving the Agency, the Office of Water Services (OFWAT), the Department of the Environment, Transport and Regions (DETR) and the Water Services Association (WSA). The agreed programme of work is referred to as an Asset Management Plan (AMP).

The Agency is involved in identifying and targeting investment required to achieve environmental improvements. Priority is currently given to schemes necessary to meet or maintain existing EC and domestic statutory obligations such as the Urban Wastewater Treatment and the Bathing Water Directives. Non-statutory schemes are also considered if they are necessary to maintain or improve river water quality and produce positive cost-benefit arguments.

AMP2 governs the expenditure for the period 1995-2000. AMP3 will detail expenditure planned for improvements that will be undertaken during the period 2000 to 2005. Initial prioritisation of schemes and cost benefit analysis for AMP3 has already being undertaken. Expenditure for some of the following solutions will fall within the AMP3 period and a detailed programme of environmental improvements will be produced later in 1998.

4.1 Adverse Environmental Impact from Wastewater Treatment Works

The adverse environmental impact from NWW Ltd Wastewater Treatment Works within the Douglas area can be considered under their contribution to the following four headings:

4.1.1 Failure to Comply with the Bathing Water Directive
4.1.2 Failure to comply with the Dangerous Substances Directive
4.1.3 Problems associated with eutrophication
4.1.4 Failures to meet non-statutory water quality objectives

The Agency will object to development plans and planning applications that could result in increased flows arriving at a Wastewater Treatment works that is presently having an adverse impact on the environment.

4.1.1 Contribution to failure to comply with the Bathing Water Directive
Despite the completion by NWW Ltd of major capital sewerage and sewage treatment works improvement schemes, failures to comply with the mandatory bacteriological standards as defined in the Bathing Water Directive have continued to be detected along the Fylde Coast. Research carried out in 1997 indicated that discharges to the Ribble Estuary, including discharges from within the River Douglas catchment, were likely contributors to poor bathing water quality. Further research recently completed by, and on behalf of, the Agency has examined the bacteriological inputs to the Ribble Estuary.

Discharges from Wigan, Skelmersdale and Hesketh Bank WwTWs have been identified as significant contributors. As a result of these findings the Agency has required NWW Ltd to implement a further programme of improvements to reduce the bacteriological loads discharged. Short term measures that were implemented for the 1998 bathing season, include the provision of secondary treatment at Hesketh Bank WwTW and chemically assisted settlement at Wigan and Skelmersdale WwTWs.

Further long-term measures have been identified and are due to be completed by the 1999 or 2000 bathing seasons where practicable. These include permanent secondary treatment and disinfection at Hesketh Bank WwTW substantial investments proposed to achieve improvements to effluent discharges at Wigan and Skelmersdale WwTWs were put on hold pending further investigations and monitoring in 1998.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Installation of further treatment to reduce bacteriological input to the Ribble Estuary: Hesketh Bank WwTW	NWW Ltd	Contribute to achieving compliance with the Bathing Water Directive along the Fylde Coast.	May 1999
Wigan & Skelmersdale WwTWs		Improved river quality in the River Douglas and contribution to the achievement of River Quality Objectives.	May 2000

Constraints: Restrictions on water company expenditure imposed by OFWAT/DETR/Outcome of investigations undertaken in 1998.

4.1.2 Failure to comply with the Dangerous Substances Directive

The River Douglas below Wigan and Skelmersdale WwTWs intermittently fails to comply with the Dangerous Substances Directive Environmental Quality Standard (EQS) for dissolved copper. The Agency has required NWW Ltd to improve the discharges from these two works by May 1999 in order for compliance with the EQS to be achieved.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Improved treatment and / or trade effluent control at Wigan & Skelmersdale WwTWs to reduce concentrations of copper.	NWW Ltd	Contribute to achieving compliance with the Dangerous Substances Directive in the River Douglas	May 1999

Constraints: Effectiveness of trade effluent control in conjunction with effluent treatment provided.

4.1.3 Problems associated with eutrophication

The Urban Waste Water Treatment Directive allows for waters identified as being eutrophic to be designated as sensitive (eutrophic) areas. Following any such designations "Qualifying" discharges to sensitive areas are subsequently required to meet the relevant phosphorus and/or nitrogen standards as stipulated in the Directive.

The treated effluent from Horwich WwTW is a significant contributor to elevated levels of phosphorus in the River Douglas. As a result of abstractions from the River Douglas to the Leeds-Liverpool Canal this discharge is believed to contribute to eutrophic conditions in the canal. This results in the prolific algal growths that can cause unsightly aesthetic conditions and on occasions cause fish kills. The River Douglas and Leeds-Liverpool Canal were designated as sensitive (eutrophic) areas in 1994 and nutrient removal is required by the end of 1998 at Horwich WwTW.

More recently, the River Lostock below Leyland WwTW and the River Yarrow below Chorley WwTW have also been designated as senstive (eutrophic) areas. Nutrient removal at these two works is required by 2004. The Agency is continuing to investigate other inputs of nutrients to these two rivers. Diffuse inputs are thought to contribute significantly to eutrophic conditions in the River Lostock upstream of Leyland WwTW. The impact of Croston WwTW to the tidal reach of the River Yarrow is also being investigated.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Installation of phosphorus removal plant at: i) Horwich WwTW	NWW Ltd	Improved water quality. Contribute to achievement of water quality objectives. Improved aesthetic quality.	December 1998
ii) Leyland & Chorley WwTWs		As above	December 2004
Further monitoring of other inputs e.g. diffuse inputs, Croston WwTW	The Agency	Determination of the need for further nutrient removal	On-going

4.1.4 Contribution to failures to meet non-statutory water quality objectives

The following failures to comply with water quality objectives and other localised water quality problems have been identified.

Failures to meet objectives
(i) Significant failure to meet the long-term objective of RE4 in the River Douglas below Wigan and Skelmersdale WwTWs due to elevated BOD and ammonia.

(ii) Significant failures to meet the long-term objectives of RE4 in Pearl Brook and in the River Douglas below Horwich WwTW due to elevated BOD and ammonia. Recent improvements have been observed in the River Douglas as a result of improvements in effluent quality at Horwich WwTW. Following an earlier voluntary agreement with NWW the consent for Horwich WwTW has been tightened to include an ammonia condition of 8 mg/l (previously 20 mg/l) which should prevent a significant deterioration in ammonia levels downstream of Horwich WwTW.

(iii) Marginal failure to meet the long-term objective of RE4 in Tarra Carr Gutter below Longton WwTW due to elevated BOD.

(iv) Marginal failure to meet the long-term objective of RE3 in the River Lostock below Leyland WwTW due to elevated BOD and ammonia. If the full consented load were discharged from this works a significant failure would be observed downstream. NWW have been unwilling to voluntarily accept a review of their consent to discharge to reflect the achievable performance by this works.

(v) Borderline compliance with the long-term objective in Eller Brook below Westhead WwTW.

Other localised problems
(i) Poor aesthetics and localised water quality problems in Slack Brook below Brindle WwTW.
(ii) Poor aesthetics and localised water quality problems below Bispham Green WwTW.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Improved treatment to meet water quality objectives at the following WwTWs Wigan & Skelmersdale; Horwich; Longton; Leyland; Westhead; Brindle	NWW Ltd	Improved water quality. Contribute to achievement of water quality objectives. Improved aesthetic quality.	AMP3 programme not yet determined. Details to be made available in the Action Plan.
Improved treatment and relocation of outfall at Bispham Green WwTW	NWW Ltd		1998/99

Constraints: Restrictions on water company expenditure imposed by OFWAT/DETR.

4.2 Adverse impact of overflows from combined sewerage systems on water quality.

Combined sewers are used to convey both foul drainage and uncontaminated surface waters (rain falling on roofs and hard standing areas) to wastewater treatment works. Combined sewer overflows (CSOs) are located on sewers or at pumping stations and discharge to local watercourses. When properly designed and constructed they should only operate during storm conditions when there is adequate dilution available in the receiving watercourse.

Historically sewerage systems were of the combined type. Problems now exist due to the increase in residential and commercial development resulting in inadequate sewer capacity and the frequent operation of storm overflows. Many of these have inadequate solids retention capability and in 'non-storm' conditions there can be consequent deterioration in water quality and adverse impact on river aesthetics.

There are presently around 50 unsatisfactory CSOs requiring improvement out of a total number of around 160 overflows within the Douglas LEAP area. High priority unsatisfactory overflows discharging to the Ince Brook, Bannister Brook, the River Chor and the River Yarrow are due to be resolved over the next few months. The remaining unsatisfactory overflows will be addressed within the AMP3 period.

Location of unsatisfactory overflows
The following failures to comply with water quality objectives and other localised water quality problems associated with discharges from CSOs have been identified within the Douglas LEAP area.

Failures to meet objectives
i) Significant failure to meet objectives of RE4 in Ince Brook. A scheme to address two unsatisfactory overflows is due to be completed in 1998.

ii) Significant failure to meet long-term objectives of RE4 in the lower reach of Pearl Brook and the reach of the River Douglas below Pearl Brook. Discharges from the unsatisfactory overflow situated on the inlet sewer to Horwich WwTW contribute to these failures.

iii) Marginal failure to meet the long-term objective of RE3 in the River Lostock below Leyland WwTW. Discharges from combined sewer overflows discharging via Bannister Brook and its tributaries contribute to this failure. A scheme to address 3 unsatisfactory overflows is due to be completed in 1999.

iv) Marginal failure to meet the long-term objective of RE3 in the River Chor. A scheme to resolve discharges from 2 of the 3 unsatisfactory overflows is due to be completed by 1999.

v) Marginal failure to meet the long-term objective of RE2 in Clancutt Brook. 3 unsatisfactory overflows presently discharge to Clancutt Brook.

Other localised problems
(i) 2 unsatisfactory overflows discharging to the culverted Barley Brook and 1 unsatisfactory CSO discharging to Close Brook in Wigan. A NWW scheme to address foul flooding of properties and which may include the abandonment of 2 UCSOs in this area is presently under consideration.
(ii) 2 unsatisfactory overflows discharging to Black Brook near Chorley.
(iii) 2/3 unsatisfactory overflows discharging to Chapel Brook, Euxton.
(iv) 2 unsatisfactory overflows discharging to Dean Brook.
(v) 4 unsatisfactory overflows discharging to the River Yarrow.

(vi) 6/7 unsatisfactory overflows discharging to the River Douglas.
(vii) 2/3 unsatisfactory overflows discharging to the River Lostock.
(ix) 3 unsatisfactory overflows discharging to Smithy Brook.
(x) 3 unsatisfactory overflows discharging to Syd Brook or tributaries of Syd Brook.
(xi) 2 unsatisfactory overflows discharging to Boundary Brook.
(xii) 1 unsatisfactory overflow at Carr Lane pumping station, Tarleton.
(xiii) 1 unsatisfactory overflow at Withnell Fold pumping station discharging to Whaves Brook.
(xiv) 1 unsatisfactory overflow discharging to Ackhurst Brook.
(xv) 1 unsatisfactory overflow discharging to Abbey Brook.
The performance of a number of sewage pumping stations in the Chorley area is presently being reviewed.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Ensure resolution of unsatisfactory CSOs within present AMP2 programme: (a) Ince (b) Chorley Main Outfalls (c) Bannister Brook	NWW	Reduction in the number of unsatisfactory CSOs by capital works. Improved water quality. Improved aesthetic quality.	(a)1998 (b)1999 (c)1999
Pursue further improvements to sewerage network to resolve remaining unsatisfactory CSOs within AMP3.	NWW The Agency	Further reduction in the number of CSOs, or improved performance of existing CSOs. Improved water quality. Contribute to achievement of water quality objectives. Improved aesthetic quality.	AMP3 programme expected later in 1998. Remaining UCSOs to be resolved during 2000-2005.

Constraints: Costs to NWW/Resolution of all problems not scheduled in AMP2

4.3 Adverse impact of contaminated surface water discharges from separate sewerage systems on water quality

Modern developments have separate sewerage systems for dealing with uncontaminated surface water run-off and foul sewage. Clean water is piped and discharged to a local watercourse and the foul sewage is conveyed to a Wastewater Treatment Works (WwTW).

The advantages of this network compared to the traditional combined sewerage system are the elimination of the need for combined sewer overflows and the reduced treatment costs due to the smaller volumes treated.

However, problems arise where foul water is incorrectly plumbed to the surface water system (e.g. from household washing machines) or where contaminated liquids are poured down surface water drains instead of drains connected to the foul sewer. This leads to Contaminated Surface Water (CSW) or "Wrong Connection" problems.

In response to problems identified by the Agency, North West Water Ltd (NWW) and the Local Authorities site inspections are carried out to identify CSW problems. These visits allow site occupiers to be made aware of the impact on water quality and to rectify any problems. A review of contaminated surface water discharges from NWW surface water outfalls was carried out during 1997. A prioritised list of CSW problems in the North West Region was produced.

Around 60 of the highest priority problems in the North West Region, including several CSW problems in the Douglas LEAP area, are to be investigated over the next 2 years funded through NWW's efficiency savings. The remaining problems are currently being considered as part of the AMP3 environmental programme of improvements.

Location of contaminated surface water (CSW) problems
The following failures to comply with water quality objectives and other localised water quality problems associated with discharges from CSWs have been identified within the Douglas LEAP area.

Failures to meet objectives
(i) Significant failure to comply with the objective of RE4 in Smithy Brook. A high priority CSW problem at Sandpiper Road, Wigan and further CSW problems at Billinge Road, Ravenswood Avenue and Costessy Way, Wigan can impact on this reach.

Other localised problems
(i) High priority CSW at Montcliffe Drive, Chorley affecting the Leeds-Liverpool Canal.
(ii) High priority CSWs in Leyland affecting Bannister (Bow) Brook.
(iii) CSW at Comet Road, Wigan affecting Close Brook.
(iv) CSWs at Penketh Place, Paxton Place, Paddock Road, New Church Farm and Houghtons Road, Skelmersdale affecting the River Tawd or tributaries of the River Tawd.
(v) CSW at Elnup Wood and at Crow Orchard, Shevington affecting Shevington Mill Brook and Almond Brook.
(vi) CSW at Stoneygate Lane, Appley Bridge affecting Sprodley Brook.
(vii) CSW at Roby Mill affecting Ayrefield Brook.
(viii) CSW at Killington Close, Wigan affecting Reed Brook.
(ix) CSW at Sheldon Avenue, Standish affecting Bradley Brook.
(x) CSW at Windsor Drive, Brinscall affecting Brinscall Brook.
(xi) CSW at Park Avenue, Chorley affecting Chapel Brook.
(xii) CSW at Huntsfield affecting Carr Brook.
(xiii) CSW at Gill Lane, Walmer Bridge affecting Walmer Brook.
(ix) CSW at Clovelly Drive, Newburgh affecting a tributary of the River Douglas.
(x) CSW at North Dene, Parbold affecting the River Douglas.
(xi) CSW at Marus Bridge affecting Hawkley Bridge.
(xii) CSW at Littleton Grove, Standish affecting Bradley Brook.
(xiii) CSW at Oxford Road, Orrell affecting Ackhurst Brook.
(xiv) CSW at Miles Lane, Appley Bridge affecting Calico Brook.
(xv) Several CSWs affecting Clayton Brook.
(xvi) CSW at Weaver Avenue, Burscough.

In addition to the above there are private (i.e. not the responsibility of NWW Ltd) wrong connection problems within the Douglas LEAP area. Agency staff are presently progressing the resolution of these problems.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Resolution of high priority CSW problems hy investigating sewer connections and remedying problems found	NWW LA The Agency	Improved water quality and aesthetics following resolution of CSW problems.	1998-1999
Resolution of outstanding CSW problems in AMP3			2000-2005

Constraints: Costs and Resources for NWW/ LAs/ Householders

Issue 5: Adverse impact of drainage from abandoned minewaters on water quality in the Douglas area.

Groundwaters enter mines which has to be actively pumped to the surface to enable mining operations to continue. When the mines are closed, however, rainwater and groundwater can flood the workings and eventually this water is discharged to a river. The chemical nature of such water varies, but a common feature is the presence of a reddish-brown suspension. This is caused by iron minerals which when oxidised, precipitate out to give the characteristic ochreous deposit.

Such discharges have an aesthetic impact due to the high colouration that adversely affects the amenity value of the watercourse. The build up of solids on the bed of the watercourse can deplete the insect communities and interfere with fish spawning grounds.

Landowners and former operators causing polluting discharges from abandoned mine workings are currently exempt from legislative control and not liable for clean-up costs.

Further site closures up to 1999 will also be exempt from legislative control. However, the Environment Act 1995 makes provision for the owners of mines abandoned after 1999 to be liable for any polluting discharge made as a result of the closure.

There are many discharges of abandoned minewater in the Douglas Catchment. The following have the major impact:

i) Minewater from the former Summersales Colliery and Pemberton Spoil area discharging into Smithy Brook.
ii) Minewater from the former Aspull Sough colliery discharging to Yellow Brook.

The Coal Authority in liaison with the Agency has ranked known areas of minewater pollution, throughout England and Wales, in priority order based on the impact on the receiving watercourse. From this list a scoping study has been produced for the top ten minewater problems identified. Mining consultants employed by the Coal Authority are now working with the Environment Agency to draw up more detailed reports on the design and costs associated with proposals to remediate the top ten sites. The Summersales Colliery / Pemberton area and Aspull Slough sites are included in the top ten high priority sites identified.

The Agency is continuing to collect data in other known areas affected by minewater discharges that currently are not listed in the top ten sites. In addition, monitoring will be undertaken wherever new minewater discharges occur in the future resulting from recently abandoned mineworkings. If funding to remediate other impacted sites becomes available in the future then it is likely that proposed solutions and costings will be drawn up in a similar manner to that described above.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Liaise with Mining Consultants on production of reports identifying solutions for the Summersales / Pemberton Site.	The Agency Mining Consultants	Agreed and fully costed solution available for inspection by DTi.	1999
Implementation of agreed solution.	Coal Authority DTi.	Improved water quality and aesthetic quality.	2000+
Continued monitoring of other known minewater problems and initiation of monitoring at any future areas impacted by new minewater discharges	The Agency	Provision of data set for identification of priority areas should additional funding become available.	1998 - 2003

Constraints: Costs / Resources / Landownership / Legal responsibilities.

Issue 6: Adverse impact on the environment from Welch Whittle Site.

Welch Whittle is a disused deep mining site and the previous issues as identified in Issue 5 are relevant also. In addition, the site was the operational location of a waste incinerator and recent water quality monitoring has identified the presence of certain organic chemicals that may well be associated with this former use. Two deep mineshafts are located on the site and it is possible that these may be providing a migration pathway to Syd Brook. The current landowners who operate the site as a scrapyard would like to consider surrendering the waste management licence but would be unable to do this without a significant site investigation.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
1.Undertake extensive investigations to determine degree of contamination	The Agency	Determine degree of decontamination required and most suitable remedial technique.	1998 – 2003
1b. Undertake detailed study focusing on findings arising from the Agency's initial study. 2a. Remedy situation by removal of contaminated areas or redundant stores 2b. Remedy situation by treating pollutants	LAs Developer Site Owner	Improved groundwater and surface water. Contribute to compliance with water quality objectives	2003+

Constraints: Costs to land owners/developers

Issue 7: Potential adverse environmental impacts of development at Gillibrands, Chorley

Additional development in the Gillibrands area of Chorley close to the River Yarrow, offers the potential to increase recreation adjacent to the River Yarrow. The Agency would seek to incorporate recreational and environmental features at the design stage, including maintaining the existing bankside and in-river habitats. In addition, we would also seek the placement of way-marked footpaths and interpretation boards. These would raise public awareness and perception of the value of the local environment.

The Agency has also identified the area of the Yarrow at Common Bank for spawning gravel enhancement works. This could also be incorporated at the design and construction stages.

The effect of these environmental and recreational design features would reduce any adverse environmental impacts of the development. The benefits would improve the landscape value of the area and therefore might enhance the local economy by attracting inward investment.

The Agency will closely monitor any work that may have an adverse effect on wildlife during the construction phase and seek to minimise adverse environmental impact.

Gillibrands Link Road should start in spring 1999 scheduled for completion by autumn 1999. The house-building programme will commence after autumn 1999.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Negotiate design elements to benefit local environment.	The Agency Developer Chorley B.C.	Improved access and amenity.	1998 - 2003

Issue 8: The utilisation of waste for energy to reduce emissions to the environment at Kirkless, Cemetery Road and Ulnes Walton Landfill Site.

Landfill gas is a by-product of the landfill process. It is created by organic waste breaking down. The main constituents of the gas are methane (60-65%) and carbon dioxide (30-40%). The methane produced can be a valuable source of renewable energy if produced in significant quantities. Landfill gas can be collected then converted into electrical energy and then sold to the national grid or used on a local level such as heating for greenhouses and fish farms

Both the Ulnes Walton and Kirkless landfill sites produce gas, and potentially in such quantities as to be economic. Apart from the obvious financial benefit this would bring to companies, landfill gas utilisation would also complement and reduce the costs of landfill gas control.

Other sites that have potential for landfill gas utilisation will be considered individually and each site will be considered on its merits.

There are three other reasons for utilising the gas:

its use prevents it venting to atmosphere where as a greenhouse gas it contributes to global warming;
it reduces the drain on non-renewable fuel resources such as oil, gas and coal;
utilisation also reduces the risk of migration and therefore reducing the potential safety hazard.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Implement gas extraction and recovery.	The Agency Lancashire Waste Services Landfill Management	Reduce emission of greenhouse gases.	1999 – 2003 1999 - 2003

Constraints: Financing of schemes. Management of any immediate landfill gas risk to take priority over energy recovery.

Issue 9: Adverse impact of Bradley Hall, Kirkless and Moss Side Industrial Estate drainage on the environment.

Where high concentrations of industry occur, there tends to be a greater impact on the environment in many ways; pollution of nearby water courses, contamination of land, large amounts of solid waste, large water usage, potential impacts on air quality and a detrimental effect to the visual amenity of the area.

Most incidents of pollution originating from industrial sites and trading estates arise from accidents, negligence, poor storage and the mishandling of oil, chemicals and waste. As well as spillage, a common problem on more modern estates occurs from wrong connections to surface water drains resulting in wash waters, process effluents, contaminated yard washes etc all discharging to the nearest watercourse. Where industrial units have been converted from older premises and sub-let, drainage systems have not usually been updated. These older systems are also more prone to blockages and leaks. In some instances drainage from the estate is non-existent. The provision of surface water interceptor diverters (SWIDs) has shown benefits along the River Tawd where water quality has improved sufficiently following their installation to enable the introduction of fish.

Proactive targeting of these sites over the next five years will lead to reductions in waste, improved water quality and a more visually attractive locality. Other sites also of concern include Lamberhead and Enterprise.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Identify and rectify any site drainage problems and site contamination including remediation where appropriate	The Agency Owners/Occupiers Wigan MBC NWW LCC	Improved water quality and improved aesthetics. Contribute to compliance with water quality objectives Reduce health risk implications.	1998 - 2003
Promote good house keeping on sites Promote initiatives e.g Aire/Calder waste minimisation project	Groundwork Wigan and Chorley Waste Minimisation Project LCEEI		1998 - 2003
Promote links with business clubs/awards EMS/ISO 14001 e.g. Heinz Kitt Green			1998 - 2003
Promote 3E's project	The Agency	Reduce environmental impacts.	1998 - 2003

Constraints: Costs to Owner/Occupiers/NWW

Issue 10: Sustainable development of Royal Ordnance Site, Euxton on the environment

The Royal Ordnance site at Euxton is a former munitions filling factory constructed between 1936 and 1939. The majority of the site is now surplus to operational requirements.

The site is now going through large-scale redevelopment through a concept routinely termed as "urban village".

The site is aiming to be a flagship for sustainable development that has been derived from an integrated approach to environmental, planning and development issues. Sustainability is also one of the key aims of the Agency. It is the intention to work in an integrated way to assist and influence the project -from sustainable urban drainage systems such as the provision of reed beds, to sustainable building design such as insulation materials.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Agency to provide expert advice and influence project where necessary.	The Agency South Ribble BC Chorley BC GWK DaY RVI	Multiple environmental benefits which can be advertised to other developers.	On -going

Issue 11: The impact of barriers restricting the distribution of fish in the Douglas area.

Several barriers, either full or partial, to fish migration have been identified including weirs, sluices and in river structures. These are having a direct influence on the success of fish reaching the upper parts of the area. Work needs to be carried out in conjunction with British Waterways, landowners and angling clubs to improve the access for fish to the higher reaches.

For any weirs where redesign is carried out by the Agency, the incorporation of recreational passage for canoes and small vessels will be considered where this is appropriate.

Areas identified as causing obstruction are as follows:

River Yarrow, Croston Weir. Probably a complete obstruction at all flows (SD 498179)
River Yarrow, Birkacre Weir (SD574146) A total obstruction
River Yarrow, M61 Motorway bridge weirs. (SD 604 163). Probably a partial obstruction at most flows
River Lostock, Farington Weir. (SD534239)
River Douglas, Gathurst Weir (SD 529078). Complete obstruction.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Incorporate works to remove obstructions in Agency / partnerwork or provide provision for fish passes in existing structures.	The Agency SRBC British Waterways North West Water Ltd Landowners Angling Clubs	Increased fisheries and recreational potential. Overall increase in level of bio-diversity	1998- 2003

Constraints: Co-operation of RO, BW, Angling Clubs and effects on land drainage.

Issue 12: The promotion of further partnership working on Wigan Flashes to enhance water quality, wildlife habitats and attract additional recreational facilities.

The Flashes Complex (part of which is designated as SSSI) offers the potential for increasing landscape value and bio-diversity. The Complex is ideally located close to the area promoted as a cornerstone of Lancashire's industrial and mining heritage. Much investigation work has been done by the Agency and Hey Brook Corridor Group in considering the current issues and the potential for realistic environmental enhancements.

Contaminated drainage from landfill sites, derelict spoil heaps and discharges from the sewerage infrastructure give rise to water quality problems. In Pearsons and Scotmans Flashes, improvements in water quality resulting from nutrient reduction are expected following completion of the work on the sewerage network by North West Water Ltd in 1998. It is hoped this will stop or reduce the events of Blue Green Algae in Scotmans Flash and the associated impact on the River Douglas. The Agency continues to collect data during seasonal surveys of Scotmans and Pearsons Flashes. These measure physico - chemical parameters and assess the nutrient status of these standing waters.

The establishment of reedbeds in Pearsons Flash will speed aid self-purification. Expansion of existing reedbeds in other parts of the Flashes complex should provide a new breeding habitat for Bitterns outside of RSPB's Leighton Moss Reserve near Carnforth.

Water quality and the availability of suitable habitat are also important in supporting the recreational fishing interests around the Flash Complex. Japanese Knotweed and Himalayan Balsam are endemic in some areas of the Flash system. In addition to this the illegal stocking of fish (especially carp) from other waterbodies into the Flashes, can alter the ecology and can even threaten the survival of the current fish population, should disease be introduced. Raising awareness, not only in the Flashes but also in other areas, should help minimise the risk of transmission of diseases and therefore reduce mortalities.

It is hoped to extend the type of water related recreational pursuits to encompass educational walks and provide a school resource.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Monitor water quality status of Pearsons and Scotmans Flashes by seasonal surveys.	The Agency	Confirmation of improvements following significant reduction in sewage discharges in 1998.	1998-2003
Formulate and implement action plan for Flashes complex to promote recreation and educational resources.	The Agency Hey Brook Corridor Working Group Flashes User Group RSPB EN NWW Wigan MBC Manchester Metropolitan University	Improve recreational and fisheries potential in an urban area. Increase aesthetic appeal. Raise public awareness and perception of the area.	1998 - 2003

Constraints: Health and Safety requirements, conflicts of interest.

Issue 13: The need to locate additional access sites for river maintenance to prevent flooding (see also Issue 14)

It has been identified in six areas of the Douglas that difficulties are being encountered at current access locations. The need to obtain access for maintenance is paramount to prevent flooding. Particularly in those areas identified as 'flood risk' i.e River Yarrow at Croston and Bannister Brook (School Lane through Leyland). The advantages of relocating access point are by way of efficiency savings for vehicles where the job is completed in a shorter time, meeting safety requirements and minimising disturbances to land use.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Identify new access locations and agree with landowner	The Agency Wigan MBC West Lancs DC Bolton MBC Chorley BC Landowner GWK Wigan and Chorley DaY RVI	By improving access the maintenance of watercourse would be made easier thus reducing flood risk due to debris and vegetation growth. Access to problem culverts also reduces flood risk associated with blockages. Improved efficiency will increase use of mechanical plant. Increase recreational benefits.	1998 - 2003

Issue 14: Lack of awareness and poor access to watercourses for recreational activities in the Douglas area. (See Issue 12 and links to Issue 13).

In the Douglas area, particularly around the urban zones, rivers and other water bodies represent one of the few natural features and are an excellent resource for recreation. However, in many areas within the Douglas catchment there is poor access to watercourses. This restricts both informal and formal recreation, including rowing , canoeing, walking, cycling, horse riding and angling. Where people cannot walk along them, they tend to become neglected and undervalued and are not therefore perceived to be a recreational asset. The Agency is keen to support the promotion of recreation within the Douglas area. However, creating or extending footpaths and recreational access, must be considered against the possibilities of disturbance to wildlife and livestock, conflicts between users and the increased threats from trespassers and flytippers.

Signage and interpretation material may help to discourage misuse of the watercourse, raise the aesthetic appeal and generally improve public perception, in addition to enhancing the local economy.
There are sites already identified under other issues i.e Wigan Flashes; Gillibrands, Chorley, Leeds Liverpool Canal, Rivington Reservoir and Birkacre Lodges.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Identify and implement improvements for public access to watercourses necessary for recreation, including water based recreation.	The Agency, Local Authority, RO Wigan/Chorley Groundwork Trusts Ramblers Association, English Sports Council Countryside Comm. BCU NW Rowing Council. BW BHS GWK Wigan and Chorley DaY RVI	Improved recreational use of the water environment. Allows public more access to enjoy rivers.	1998 - 2003
Encourage the creation, extension and linking of linear parks, footpaths, cycleways and bridleways adjacent to water bodies, including those in disrepair.	The Agency, Local Authority, RO Groundwork Trusts Ramblers Association, English Sports Council Countryside Comm Parish Councils DaY RVI	Improved recreational use and increased public perception of the watercourse.	1998 - 2003
Locate signage and interpretation boards along footpaths and on bridge crossings to increase public awareness.	The Agency BCU/Rowing clubs LCC (Rights of Way) LWT RO Groundwork Trusts Countryside Comm Parish Councils DaY RVI	Increased public knowledge, perception and awareness of the water environment and its uses.	1998 - 2003

Constraints: Maintenance. Security of waterside properties. May increase risk of tipping and littering. Access structures can be visually obtrusive.

Issue 15: Lack of knowledge of our built heritage associated with rivers means that it is deteriorating through lack of maintenance or inadvertently being destroyed by routine operations or inappropriate development. Its potential to attract recreational users and provide an educational source is also not being realised.

The industrial heritage element of the Douglas area, particularly located by the waterside is itself an important recreational asset. Larger mills and the famous site of Wigan Pier are attracting a large number of tourists, contributing towards the local economy. However, there is a lack of information regarding the archaeological value of riparian sites. Further investigation is needed to assess the heritage potential of the area.

There are a number of sites within the Douglas area which have been identified, but are deteriorating through natural processes or lack of maintenance. Given our poor knowledge of the area's archaeology there must also be other sites that we do not know about that are deteriorating or are at risk from development. We need to identify these sites so that appropriate action can be taken to preserve and, if needed, develop them to realise their potential. They can then be incorporated in the planning system and made available within the Agency so that Flood Defence maintenance and capital projects or work by other departments does not inadvertently damage features of archaeological significance.

Examples:
Because part of the problem is that we know so little about the archaeology of the rivers in the Douglas area we have no examples of sites in need of protection. However, work done on similar catchments has shown that examples soon come to light when surveys are carried out.

Generally over the plan area the Sites and Monuments Records are fairly sparse especially when compared to Bury. Bury has had a lot of survey work carried out recently and we expect that the high number of SMR entries is likely to reflect the better coverage rather than Bury being particularly rich in archaeological remains. The same could be said for most of the rest of the catchment. Therefore survey work is necessary to quantify the archaeological resource within the catchment before we can take steps to protect features.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Archaeological Survey within 10m of River Douglas, Lostock and Yarrow. Manage the storage and manipulation of this data on GIS and disseminate to planning, flood defence and other interested parties.	The Agency LCC Greater Manchester Archaeology Unit Ramblers NW Wetlands Project Local Historical Groups LA	Increase knowledge of riparian archaeological interest in order to protect and conserve them. Preservation of local heritage features easier to administer.	1999 - 2001
Investigate ways of preserving and or developing the known sites and other new sites that come from the above survey	The Agency Lancashire County Council Greater Manchester Archaeology Unit LA NW Wetlands Project Local Historical Groups	Preservation of local heritage features.	2000 - 2002

Constraints: Lack of current knowledge

Issue 16: Failure to comply with Water Quality Objectives and impact on water quality due to agricultural activities

Agricultural activity predominates in certain parts of the Douglas Area. Diffuse run-off from agricultural land associated with cultivation, fertiliser usage and slurry spreading can result in pollution.

The stretches listed below are those in which farming is considered to contribute to the failure to comply with a water quality objective.

Failures to comply with objectives
(i) Significant failure to comply with the long term objective of RE4 in Carr Brook.
(ii) Marginal failure to comply with objectives of RE3 in Culbeck (Chapel) Brook.
(iii) Marginal failure to comply with the long term objective of RE3 in Longton Brook.
(iv) Marginal failures to comply with the objectives of RE4 in Calico Brook.
(v) Marginal failure to comply with the long term objective of RE3 in Buckhow Brook.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Carry out intensive surveys and specific pollution control farm campaigns to identify and rectify sources of farm pollution e.g. Carr Brook catchment	The Agency Farmers	Improved water quality. Contribute to the achievement of water quality objectives.	1999
Continue farm inspections and promotion of best farming management practices.	The Agency Agricultural Consultancies		On-going

Constraints: Costs to Farmers, lack of MAFF grants

Issue 17: Failure to comply with Water Quality Objectives and impact on water quality due to discharges from private sewage treatment works.

In most communities in the UK domestic residences are connected to a sewerage system, most of which are owned and run by a Water Services Company. However, in some rural areas where there are only a few dozen properties or less, a public sewer may not be available. In such situations the provision of a sewerage system may be excessively costly, as it could involve the laying of many kilometres of pipe and need pumping stations to take the waste to the nearest treatment works.

Where there is no provision of a foul sewer, domestic waste often goes to a private treatment facility such as a septic tank. These then discharge to a soakaway or to the nearest watercourse. Most modern small treatment plants incorporate a biological filter system and treat waste to a good quality if maintained properly and not overloaded. However, increasing usage of water will place a greater load on existing systems and some of these may not now be able to cope. In certain rural areas housing developments may have resulted in a conglomeration of such systems.

Section 22 of the Environment Act 1995 places a new duty on sewerage undertakers, via Section 101A of the Water Industry Act 1991, to provide, where appropriate and cost effective, first time sewerage facilities in areas suffering from environmental or amenity problems caused by the existing sewage disposal arrangements. Developments in these areas will be restricted due to inadequate drainage facilities.

Failures to comply with objectives
(i) A lack of sewerage facilities at Drumacre Lane may contribute to the marginal failure to meet the long term objective of RE4 in Tarra Carr Gutter
(ii) A lack of sewerage facilities at Top Locks Briars Lane,Glover Bridge; Burscough Road; Dark Lane; Lathom and Ring'O'Bells may contribute to the borderline compliance in Eller Brook.
(iii) A lack of sewerage facilities at the top of Tunley Brook may contribute to the marginal failure to comply with the long term objective of RE3 in Buckhow Brook.
(iv) A lack of sewerage facilities may contribute to the marginal failure to comply with the long term objective of RE3 in Longton Brook.

Other localised problems
(i) A lack of sewerage facilities at Roby Mill, Little Hoole, Shore Road Tarleton and High Moor affecting tributaries of the lower River Douglas.

SOLUTIONS	RESPONSIBILITY	BENEFIT	TIMESCALE
Pursue provision of first time sewerage facilities or alternative solutions for known problem areas.	Householders LAs NWW The Agency	Improved water quality. Contribute to the achievement of water quality objectives.	On going

Constraints: Costs to NWW/Householders. Dependent on householders applying to NWW Ltd for connection to the sewerage network.

Section 2: Uses, Activities, State and Pressures in the Area

This section contains supporting information on the environment of the Douglas area. It focuses on the uses, activities and current state of physical resources of the area in relation to the work of the Agency.

2.1 WATER QUALITY

Water quality plays a significant role in determining a variety of uses that the Douglas LEAP area can support. This section explains the criteria used to set water quality standards and the method of assessing current water quality against these standards.

Agency Monitoring duties
The Agency has a duty to monitor the extent of pollution in controlled waters that include rivers, streams, ditches, lakes, groundwater, estuaries and coastal waters. This is achieved by chemical, biological and microbiological sampling programmes. Details of the current monitoring and classification schemes are given in Appendix 1. Water quality information is available to the public and held on the Water Resources Act public register.

Water Quality Objectives
Water Quality Objectives can be considered in three parts:

EC Directive Water Quality Objectives
Short to medium term River Ecosystem water quality objectives
Long term River Ecosystem water quality objectives

EC Directive Water Quality Objectives
The following EC Directives contain standards that have implications for water quality within the Douglas area:

The Dangerous Substances Directive (76/464/EEC) which is concerned with controlling pollution caused by discharges of certain dangerous substances.

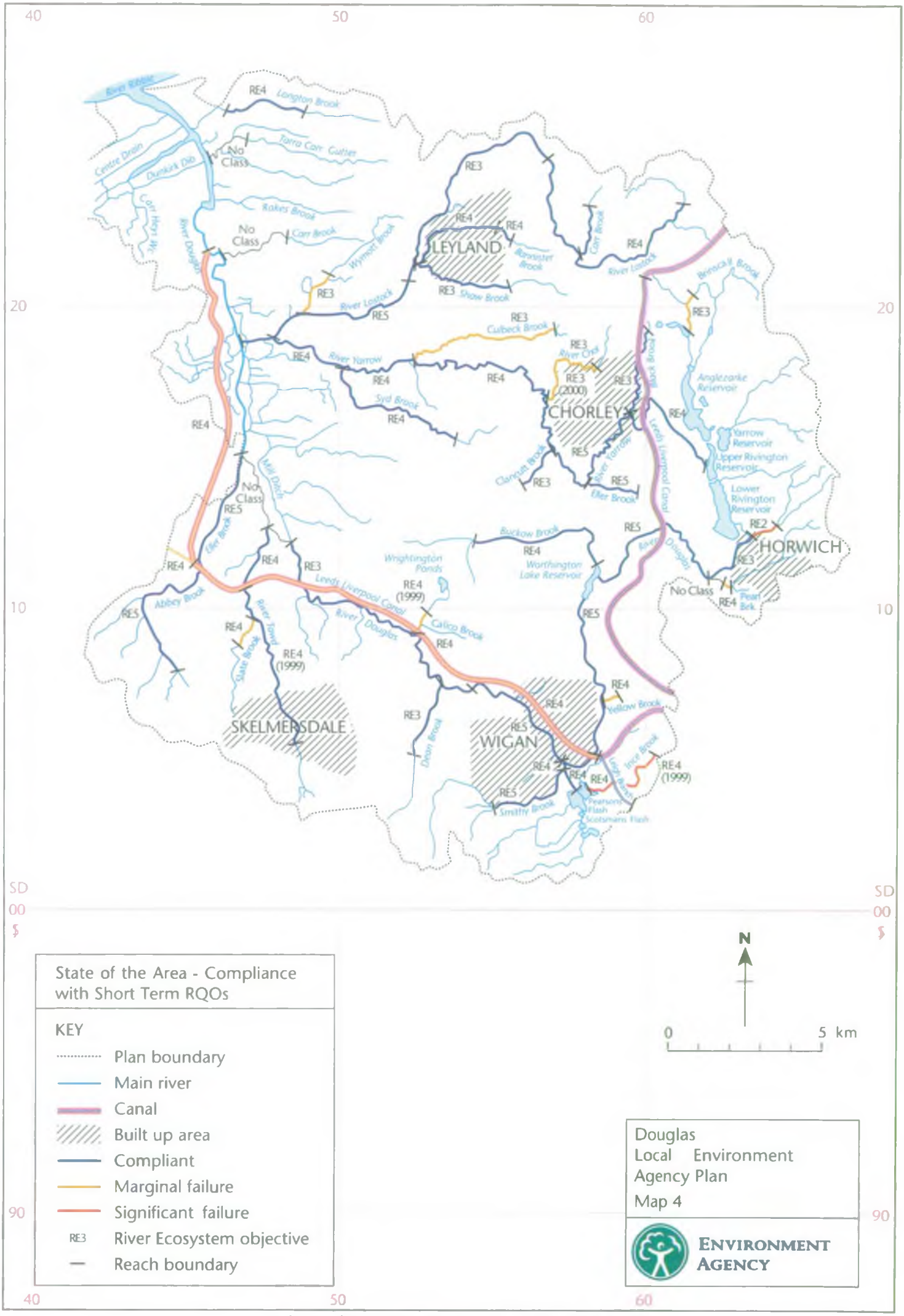
The Bathing Water Directive (76/160/EEC) which sets Environmental Quality Standards (EQSs) for designated waters that are used for bathing.

The Freshwater Fisheries Directive (78/659/EEC) which sets Environmental Quality Standards (EQSs) for stretches of waters that are designated as being suitable for salmonid or cyprinid fisheries.

The Urban Wastewater Treatment Directive (91/271/EEC) which specifies requirements for the collection and treatment of industrial and domestic waste waters at urban wastewater treatment works and for treatment of wastewater from certain types of industry prior to direct discharge to watercourse.

The Surface Water Abstraction Directive (75/440/EEC) which specifies specific standards for the quality of raw waters abstracted for use as drinking water.

Short to Medium Term River Ecosystem Water Quality Objectives
Every classified stretch in the Douglas area has been set a short to medium term water quality objective (RQO) comprising a River Ecosystem class and an associated target date. Descriptions for the five River Ecosystem Use classes and the quality criteria for each class are given in Appendix 1.



State of the Area - Compliance with Short Term RQOs

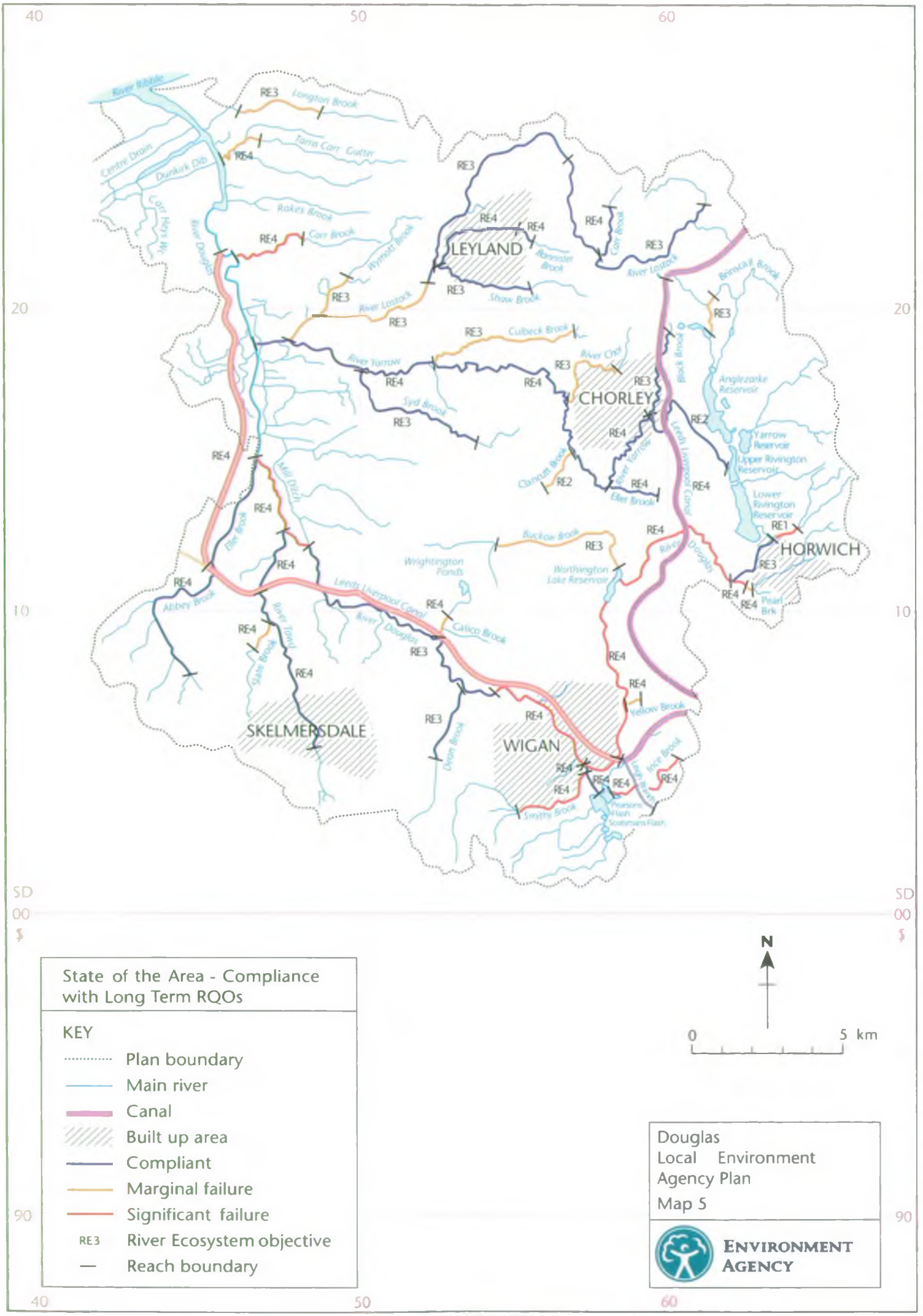
KEY

- Plan boundary
- Main river
- Canal
- Built up area
- Compliant
- Marginal failure
- Significant failure
- RE3 River Ecosystem objective
- Reach boundary

Douglas Local Environment Agency Plan

Map 4

ENVIRONMENT AGENCY



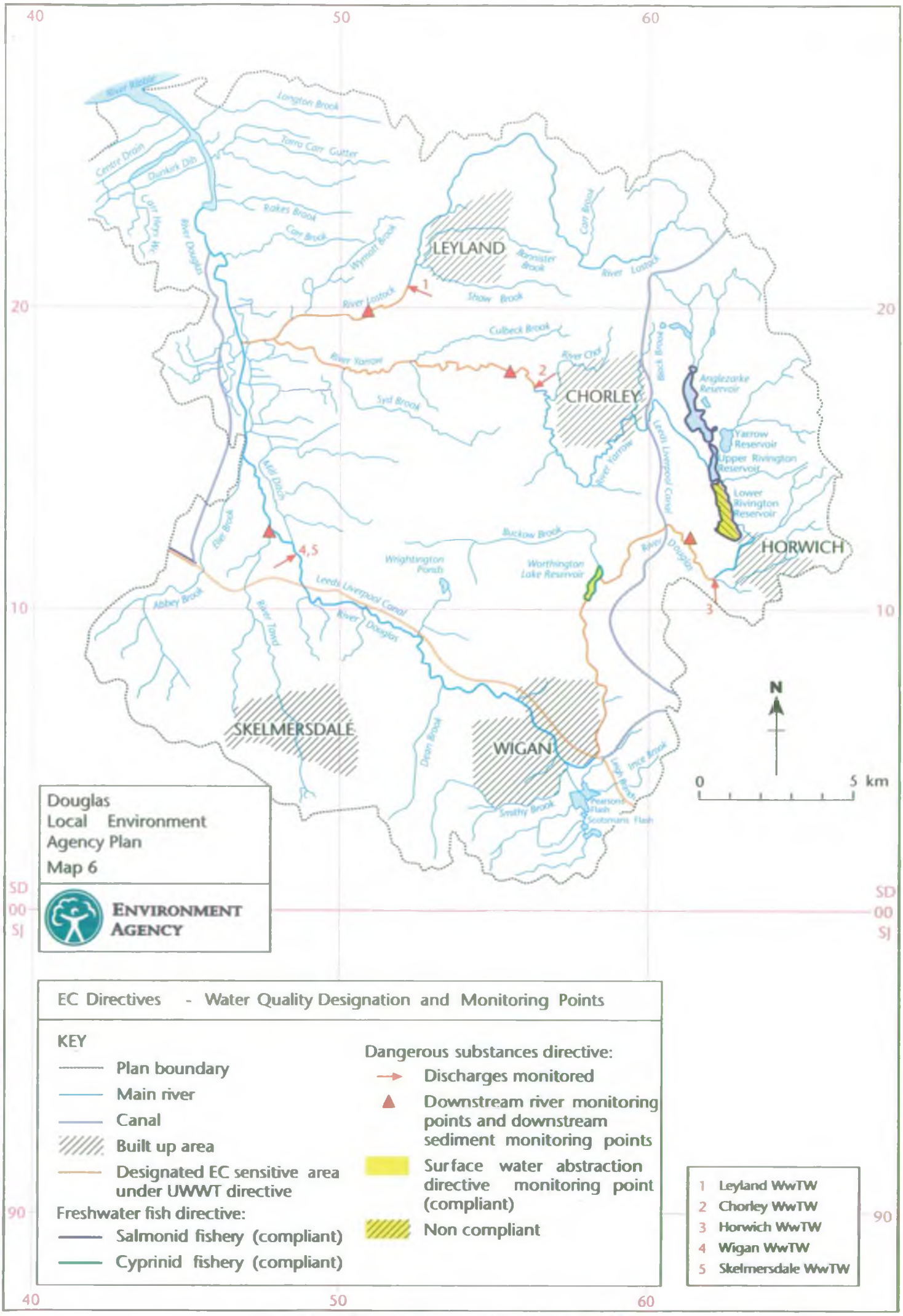
State of the Area - Compliance with Long Term RQOs

KEY

- Plan boundary
- Main river
- Canal
- Built up area
- Compliant
- Marginal failure
- Significant failure
- RE3 River Ecosystem objective
- Reach boundary

Douglas
Local Environment
Agency Plan
Map 5

ENVIRONMENT AGENCY


40
50
60
20
10
90
SD
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SJ
LEYLAND
CHORLEY
HORWICH
WIGAN
SKELMERSDALE
River Ribble
Longton Brook
Centre Drain
Dunkirk Dib
Tarra Carr Gutter
Carr Hey Brook
River Douglas
Rakes Brook
Carr Brook
Wymott Brook
Bannister Brook
River Lostock
Shaw Brook
Culbeck Brook
River Yarrow
Syd Brook
River Chor
Black Brook
Anglezarke Reservoir
Yarrow Reservoir
Upper Rivington Reservoir
Lower Rivington Reservoir
Leeds Liverpool Canal
Mill Ditch
Elle Brook
Buckow Brook
Wrightington Parish
Worthington Lake Reservoir
River Douglas
Abbey Brook
River Tawd
Drain Brook
Ince Brook
Lindy Brook
Smithy Brook
Pearson's Flash
Scotsmans Flash
1
2
3
4,5
N
0
5 km
Douglas
Local Environment
Agency Plan
Map 6
ENVIRONMENT AGENCY
EC Directives - Water Quality Designation and Monitoring Points
KEY
Plan boundary
Main river
Canal
Built up area
Designated EC sensitive area under UWWT directive
Freshwater fish directive:
Salmonid fishery (compliant)
Cyprinid fishery (compliant)
Dangerous substances directive:
Discharges monitored
Downstream river monitoring points and downstream sediment monitoring points
Surface water abstraction directive monitoring point (compliant)
Non compliant
1 Leyland WwTW
2 Chorley WwTW
3 Horwich WwTW
4 Wigan WwTW
5 Skelmersdale WwTW

Where an objective has been set in order to protect water quality and prevent deterioration the objective applies with immediate effect. For other stretches, target dates have been set to coincide with completion dates for capital improvement works or farm campaigns by Agency environment protection staff, for example RE4 (1999). This indicates an objective of class RE4 to be obtained by the year 1999.

Long Term River Ecosystem Water Quality Objectives
For some stretches of river no investment is planned over the short to medium term although water quality may presently be poor. In the longer term, the Agency is committed to seeking further improvements in these reaches and in this respect long-term River Ecosystem objectives have also been proposed for all classified stretches in the Douglas area. Details of these objectives are given in Appendix 1.

State of the local Environment
General
It is possible to assess the state of the watercourses within the Douglas area against the water quality objectives described above.

An assessment has been made using data from the routine water quality sampling programme. A three-year calendar period (1995-1997) has been taken, the error involved in sampling has been considered and statistical confidence limits calculated for the water quality data.

In assessing compliance with River Ecosystem objectives, stretches which presently comply with their water quality objectives are coloured blue, stretches that marginally fail to comply with their water quality objectives are coloured orange and stretches that significantly fail to comply with their water quality objectives are coloured red.

The state of the Douglas area in terms of compliance with short to medium term objectives is shown on map 4. The state of the Douglas area in terms of compliance with long term objectives is shown on map 5. The state of the Douglas area in terms of compliance with EC Directives is shown on map 6.

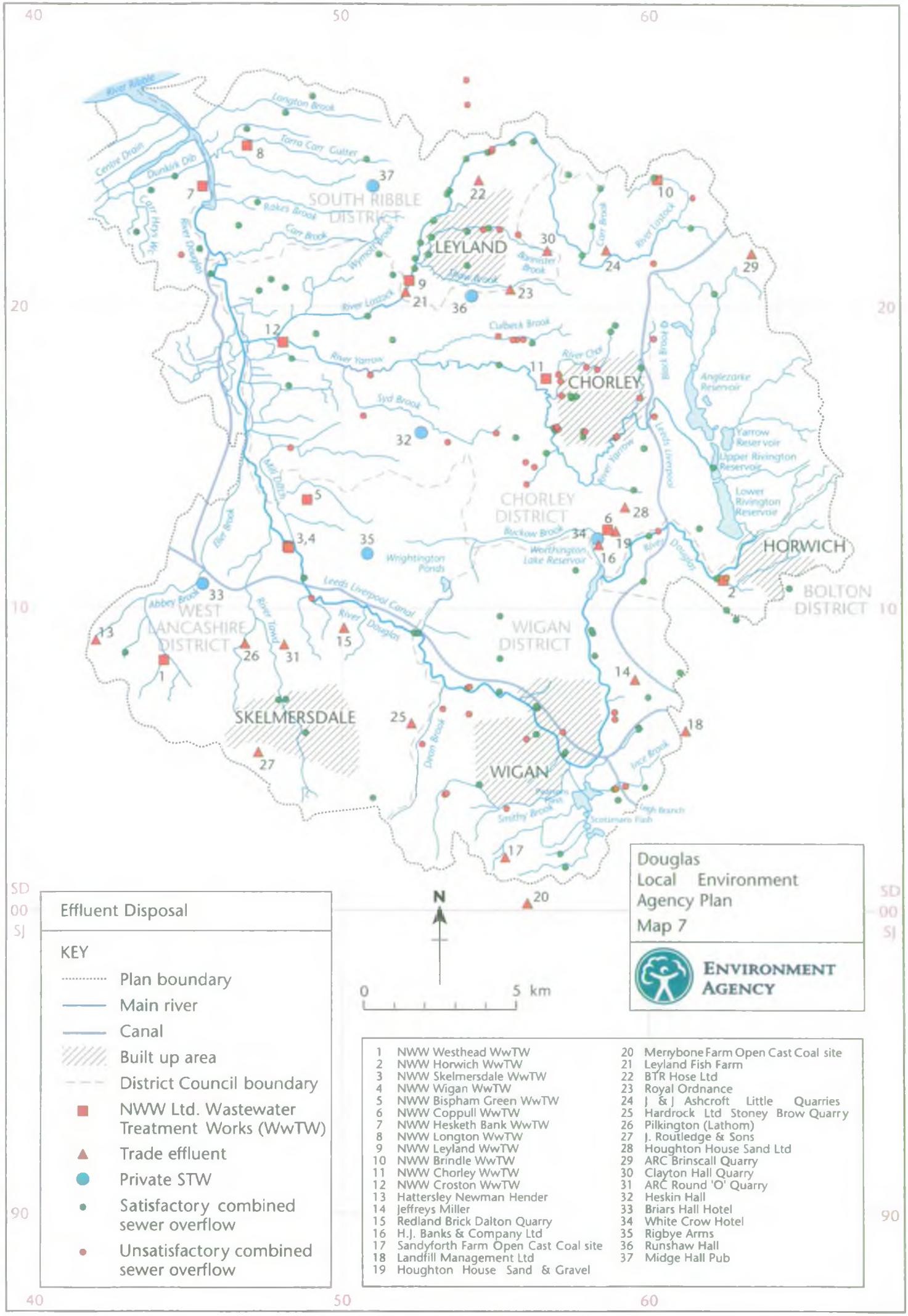
Failures to Meet Objectives and Issues Arising
Failures to meet objectives have been grouped together and are discussed in the Issues section under the following issues:

Adverse Impact of discharges from NWW Ltd WwTWs and sewerage systems (Issue 4)
Adverse Impact of drainage from abandoned minewaters (Issue 5)
Failure to comply with Water Quality Objectives and impact on water quality due to agricultural activities (Issue 16)
Failure to comply with Water Quality Objectives and impact on water quality due to discharges from private sewage treatment works (Issue 17)

Failures to meet objectives - Causes unknown
The following objectives are presently not being met in the catchment but there are no clear known reasons for these failures. Further investigations are being undertaken to identify any issues and actions required to achieve compliance:
i) Failure to comply with the Surface Water Abstraction Directive standards for barium, phenols, cadmium, copper, lead and poly-aromatic hydrocarbons in 1997 at Rivington Reservoir.

ii) Failure to comply with the Dangerous Substances Directive standards for endrin, isodrin and DDT in 1997 in the River Douglas at Wanes Blades Bridge.

iii) Significant failure to comply with the long term objective of RE1 in the upper reach of the River Douglas.



Effluent Disposal

KEY

- Plan boundary
- Main river
- Canal
- Built up area
- District Council boundary
- NWW Ltd. Wastewater Treatment Works (WwTW)
- Trade effluent
- Private STW
- Satisfactory combined sewer overflow
- Unsatisfactory combined sewer overflow

1 NWW Westhead WwTW	20 Merrybone Farm Open Cast Coal site
2 NWW Horwich WwTW	21 Leyland Fish Farm
3 NWW Skelmersdale WwTW	22 BTR Hose Ltd
4 NWW Wigan WwTW	23 Royal Ordnance
5 NWW Bispham Green WwTW	24 J & J Ashcroft Little Quarries
6 NWW Coppull WwTW	25 Hardrock Ltd Stoney Brow Quarry
7 NWW Hesketh Bank WwTW	26 Pilkington (Lathom)
8 NWW Longton WwTW	27 J. Routledge & Sons
9 NWW Leyland WwTW	28 Houghton House Sand Ltd
10 NWW Brindle WwTW	29 ARC Brinscall Quarry
11 NWW Chorley WwTW	30 Clayton Hall Quarry
12 NWW Croston WwTW	31 ARC Round 'O' Quarry
13 Hattersley Newman Hender	32 Heskin Hall
14 Jeffreys Miller	33 Briars Hall Hotel
15 Redland Brick Dalton Quarry	34 White Crow Hotel
16 H.J. Banks & Company Ltd	35 Rigbye Arms
17 Sandyforth Farm Open Cast Coal site	36 Runshaw Hall
18 Landfill Management Ltd	37 Midge Hall Pub
19 Houghton House Sand & Gravel	

2.2 EFFLUENT DISPOSAL

General
This use relates to the disposal of domestic and industrial effluents to controlled waters. Discharges to controlled waters of sewage or trade effluent from those processes not subject to authorisation by the Agency under the Environmental Protection Act 1990 require a discharge consent from the Agency under the provisions of the Water Resources Act 1991. These consents normally include limits on the nature, volume and chemical composition of the effluent.

Consents are a means of ensuring that the effects of a discharge are limited to such an extent that water quality remains acceptable for relevant downstream uses. Many consents inherited by the Agency and by the former National Rivers Authority were set at levels too lax to meet the requirements of downstream uses. These are progressively being addressed within the prevailing restrictions, particularly those restrictions on the Water Companies' expenditure.

The Agency seeks to ensure that consents protect the uses of the receiving watercourses and also aim to eliminate pollution from discharges of dangerous substances.

Details of discharge consents are available for inspection on the public registers in the Area office.

Local Perspective
Discussion follows under two headings:
-Continuous effluents
-Intermittent discharges

Continuous Effluents
Sewage
North West Water Ltd (NWW) have 12 Wastewater Treatment Works (WwTWs) in the Douglas area (Map 7). The WwTWs in the catchment vary in size with the smallest WwTWs at Bispham Green and Coppull treating population equivalents of less than 100 and the largest complex of WwTWs at Hoscar a population equivalent of more than 350,000.

WwTWs serving both Wigan and Skelmersdale are situated at Hoscar and discharge to the River Douglas. These discharges are responsible for poor water quality in the river downstream and are also believed to be the cause of elevated levels of copper causing intermittent failures to comply with the standard for dissolved copper contained in the Dangerous Substances Directive. In addition it is believed that discharges from these works contribute significant bacteriological loads to the River Ribble Estuary which is thought to contribute to poor quality bathing water along the Fylde Coast. Temporary chemically assisted settlement was undertaken at both works during the 1998 bathing season. Work is continuing to support the large expenditure required for a permanent solution to produce better quality effluents from the Hoscar complex.

Hesketh Bank WwTW discharges to the tidal River Douglas and also contributes a significant bacteriological load to the Ribble Estuary. Temporary secondary treatment was introduced at Hesketh Bank WwTW in 1998 and a permanent solution to produce a better quality effluent and reduced bacteriological load is required for the 1999 bathing season.

Improved trade effluent control at Horwich WwTW in 1996 has led to a better quality final effluent discharged from this works. This improvement was a result of an agreement reached between the Agency and NWW Ltd during the drought period, which allowed a reduction in the compensation flow below Rivington Reservoir. The ammonia condition for Horwich WwTW was tightened in 1998 from 2mg/l to reflect effluent quality achieved as part of the earlier agreement. Horwich WwTW does, however, discharge significant loads of phosphorus to the River Douglas and as a result of abstractions from the River Douglas to the Leeds-Liverpool Canal this is believed to contribute to eutrophic conditions in the canal, such as the prolific algal

growths which can cause unsightly aesthetic conditions and on occasions cause fish kills. The River Douglas and Leeds-Liverpool Canal were designated as sensitive (eutrophic) areas in 1994 and nutrient removal is required by the end of 1998 at Horwich WwTW.

Chorley WwTW and Leyland WwTW have also been identified as contributing to eutrophication in the Rivers Yarrow and Lostock respectively and nutrient removal will be required at these two works by 2004. An improvement scheme was completed at Chorley WwTW in late 1997 and water quality in the River Yarrow should now be able to support a sustainable fishery. The quality of the final effluent discharged from Leyland WwTW is better than that presently required by the present consent conditions. If the full consented load were discharged a significant failure to comply with the long-term objective would result downstream. NWW Ltd have not been willing in the past to accept a review of their consent to reflect the achievable performance of this works.

NWW WwTWs at Westhead and Longton are believed to contribute to poor water quality downstream and the smaller NWW WwTWs at Brindle and Bispham Green are presently causing more localised problems. Improvement schemes for these works have been identified and are presently under consideration.

There are also a small number of private sewage treatment works in the Douglas Area and in parts of the area that are unsewered properties are served by septic tanks. The impact on the receiving waters from these works is generally of minor significance, although there are problems in areas where either a conglomeration of septic tank discharges or the lack of any proper treatment facilities at all, is contributing to poor water quality. The following areas in particular are affected to some extent:

Drumacre Lane, Briars Lane, Glover Bridge, Burscough Road, Dark Lane, Lathom, Ring'O'Bells, the top of Tunley Brook, Longton Brook, Southway and Holland Moor, Top Locks, Roby Mill, Little Hoole, Shore Road at Tarleton and High Moor.

Under the legislation brought into effect by the Environment Act 1995, Water Companies have been given a new duty to provide, where appropriate and cost effective, first time sewerage facilities in areas suffering from environmental or amenity problems caused by the existing sewage disposal arrangements. It is possible that these problems may therefore be addressed over the next few years.

Industrial

As a result of former policies of encouraging discharges of trade effluent to sewer, there are relatively few discharges of industrial trade effluent direct to watercourses within the Douglas area. These discharges consist mostly of cooling water.

Intermittent Discharges

Combined Sewerage Systems

Combined sewerage systems carry both foul drainage and surface water run-off e.g. rainfall. Combined sewer overflows (CSOs) and sewage pumping station overflows are located on most sewerage systems in the catchment and are subject to consents which aim to limit the frequency of the discharge to occasions when intense rainfall occurs and adequate dilution is available in the receiving watercourse. However, on many sewerage systems, particularly older systems, sewers may be overloaded and overflows may occur at a greater than acceptable frequency.

There are in the region of 160 combined sewer overflows in the Douglas Area. Of these overflows approximately 50 are presently identified as unsatisfactory. NWW Ltd are presently implementing several sewerage rehabilitation schemes to resolve unsatisfactory overflows discharging to Ince Brook, Bannister Brook, the River Chor and the River Yarrow. The remaining overflows will be addressed within the AMP3 period subject to funding being made available.

Separate Sewerage systems
Separate sewerage systems use surface water sewers for dealing with surface water and foul sewers for dealing with foul drainage. However watercourses are liable to contamination, mainly due to wrong connections of foul drainage into the surface water drainage network. There are around 30 contaminated surface water (CSW) outfalls within the Douglas LEAP area. Several of the high priority problems are to be investigated over the next two years.

Industrial Estates
There are a number of industrial estates within the Douglas Area and drainage systems on these estates are liable to contamination. Contaminated discharges from these can potentially have an impact on the receiving water. Improved water quality in the River Tawd in Skelmersdale has been observed in recent years as a result of improved drainage on the Gillibrands, Pimbo and Stanley Industrial Estates and in particular the provision by NWW Ltd of surface water interceptor diverters (SWIDs).

Agriculture
Agricultural activity predominates over much of the Douglas Estuary area with the emphasis being on arable farming in this part of the area. In the upper parts of the area the emphasis is on sheep and dairy farming although the activity is less intense.

Incidents from farms including releases of silage, slurry and other farm waste can cause serious pollution problems. Proactive surveys and farm visits are ongoing within the catchment to identify sources of farm pollution and pollution control staff provide advice to farmers to improve their waste handling and storage facilities to prevent pollution incidents occurring. In general there is a good degree of co-operation from farmers and many farmers have carried out significant improvements to their facilities in recent years. This was largely done with help from the Farm Conservation (MAFF) grant scheme that paid up to 50 % of the costs of new facilities. The ending of this scheme a few years ago now means that farmers must themselves fully meet the costs of further improvements.

Agricultural activity can also cause problems from diffuse pollution, in particular from the spreading of farm waste as well as artificial fertilisers and pesticides. These diffuse pollution sources are more difficult to control. The use of Farm Waste Management Plans to control this type of pollution is promoted by both the Agency and agricultural consultancies.

Effluent Disposal Objectives
Environmental Objectives

To monitor surface waters and discharges to establish compliance with river quality objectives and effluent consent standards and to ensure that other uses are not compromised.

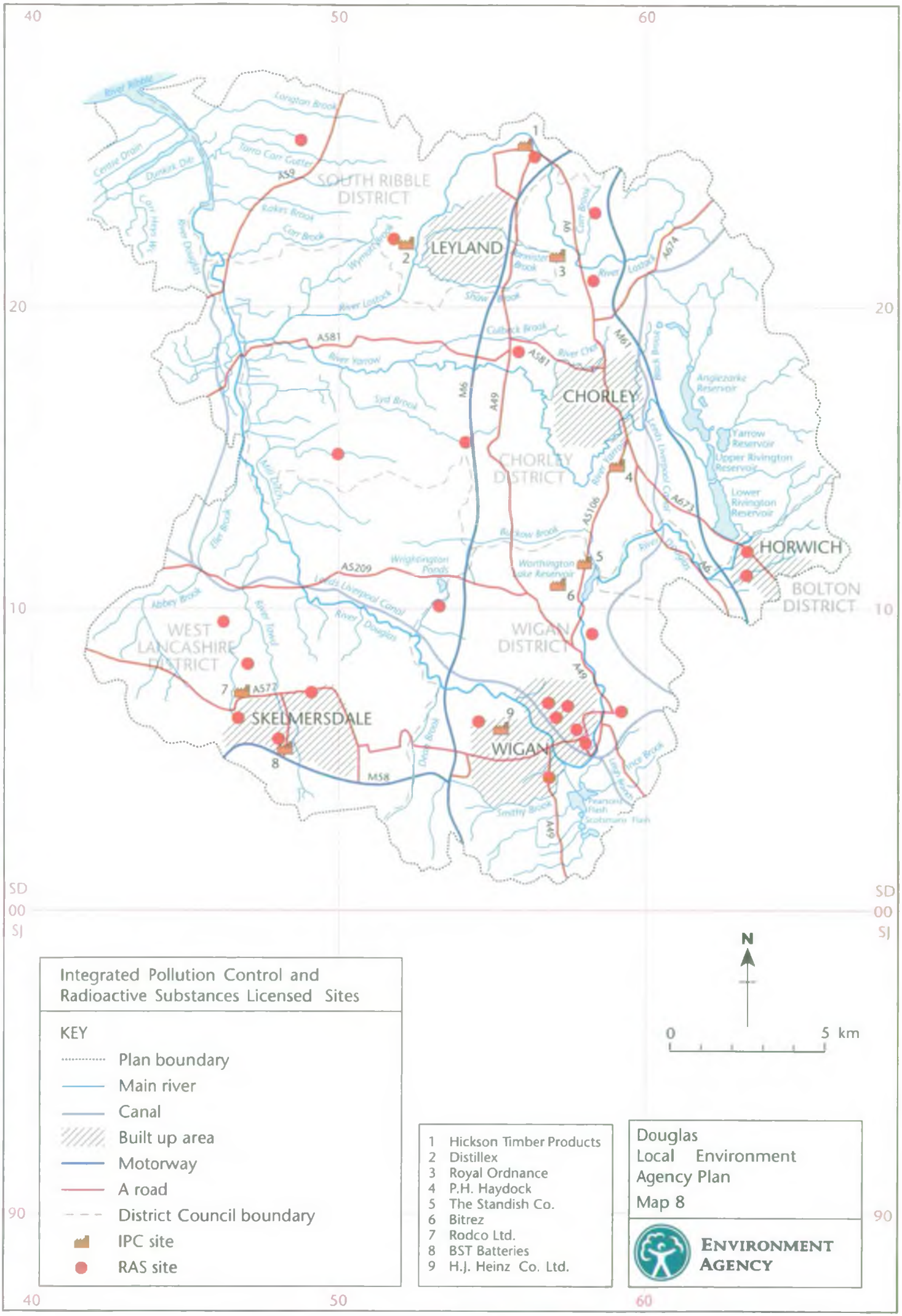
To ensure requirements for improvements are identified and pursued for both continuous and intermittent discharges.

Environmental Requirements

Water Quality
No deterioration in upstream water quality, beyond that assumed in setting consents.

Water Quantity
No significant reduction in river flow beyond that used in setting consents.

Physical Features
Outfalls should be sited to achieve rapid mixing of effluent with river contents and to minimise impact on amenity value.



Integrated Pollution Control and Radioactive Substances Licensed Sites

KEY

- Plan boundary
- Main river
- Canal
- Built up area
- Motorway
- A road
- District Council boundary
- IPC site
- RAS site

1 Hickson Timber Products
2 Distillex
3 Royal Ordnance
4 P.H. Haydock
5 The Standish Co.
6 Bitrez
7 Rodco Ltd.
8 BST Batteries
9 H.J. Heinz Co. Ltd.

Douglas
Local Environment
Agency Plan
Map 8

ENVIRONMENT AGENCY

Issues Arising:

Adverse Impact of discharges from NWW Ltd WwTWs and sewerage systems (Issue 4)
Adverse Impact of drainage from abandoned minewaters (Issue 5)
Failure to comply with Water Quality Objectives and impact on water quality due to agricultural activities (Issue 16)
Failure to comply with Water Quality Objectives and impact on water quality due to discharges from private sewage treatment works (Issue 17)

2.3 AIR QUALITY

Air quality is an indicator of environmental quality. Among the main air quality issues are acid rain, stratospheric ozone depletion, ground level ozone formation and global warming. Industry is a major contributor to global environmental effects such as acid rain and global warming, as well as a wide variety of more local environmental problems. Industry has the potential to make serious impacts on water, land and air quality. The natural and man-made environment, fauna and flora require conservation and protection in order to maintain our national and international heritage and its bio-diversity.

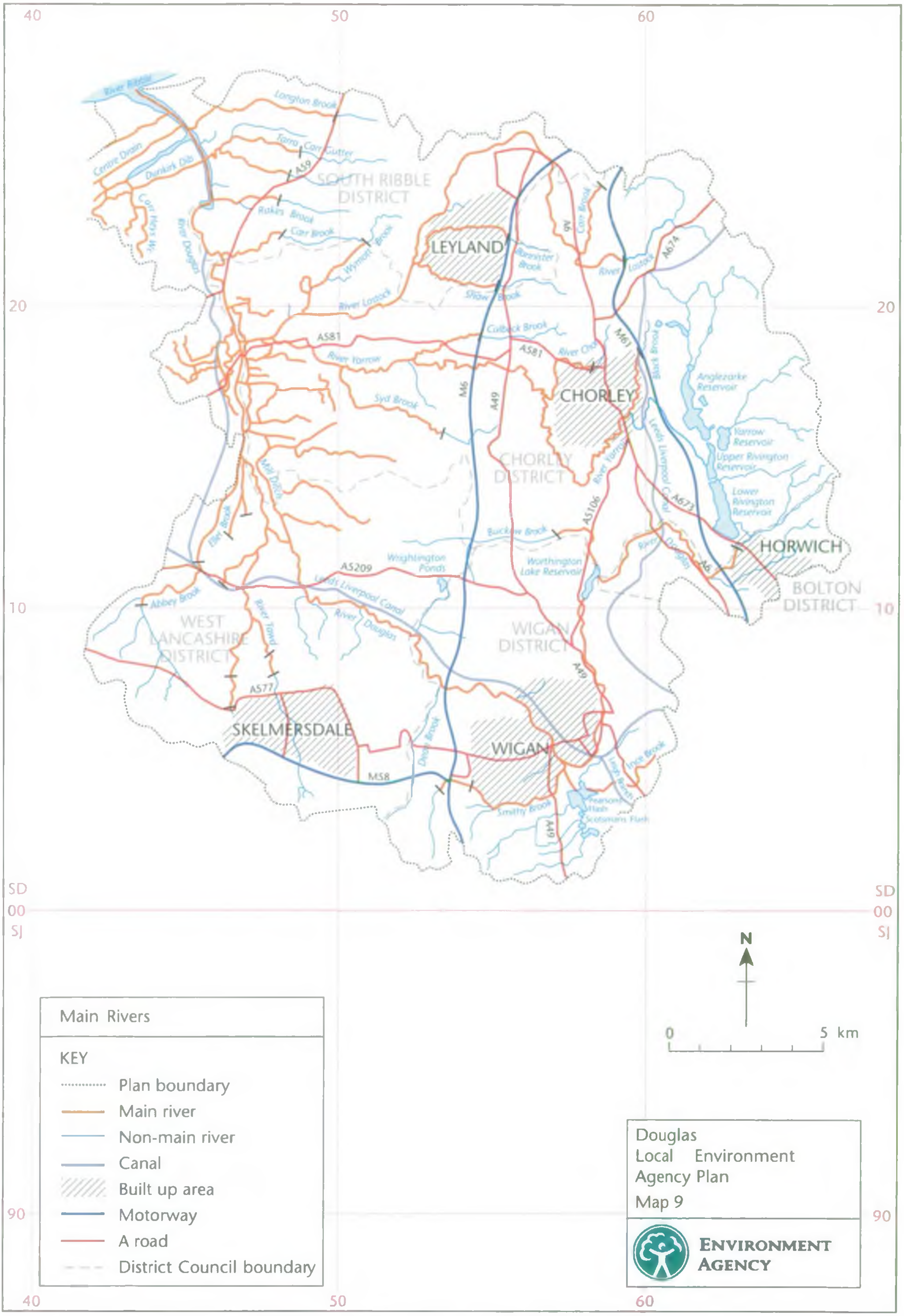
Local Authorities have primary responsibility for local air quality management, controlling emissions to air from many small industrial processes under Part I of The Environmental Protection Act 1990. The Environment Agency has powers under Part I of the Environmental Protection Act 1990 to regulate releases to air by operating a system called Integrated Pollution Control (IPC). This applies to the larger and potentially most polluting industrial processes (Map 8).

Effective regulation of these process industries is a key instrument in delivering the Government's policies, plans and obligations. Examples of the regulations include the National Air Quality Strategy, the European Union's draft Acidification Strategy, the Climate Change Convention, and international protocols concerning substances such as volatile organic compounds and heavy metals.

The 3E's project. A methodology, linking industrial emissions, efficiencies and economics was developed by the North East Region of HMIP in collaboration with a chemical company during 1995 and has been further refined by the Environment Agency's North East Region. The project has become known as the 3E's Project.

The principal aim of the project is to work with industry to demonstrate that the integrated approach to protection of the environment is not as expensive as some might think but is, in fact, extremely good value for money. The Agency has taken on board this project that will contribute to its objective of making a real difference to the environment as well as highlighting potential gains for industry.

The 3E's methodology is a structured technique to achieve improved environmental performance through process optimisation. It involves reviewing a process in a systematic way to identify improvements and to assess their impact on "Emissions, Efficiency and Economics". We will be looking for companies within the Douglas Catchment to be introduced to the guide to see how this methodology can be applied to their particular process - to identify the potential improvements that can be made to their environmental and economic performance.


Main Rivers
KEY
Plan boundary
Main river
Non-main river
Canal
Built up area
Motorway
A road
District Council boundary
Douglas
Local Environment
Agency Plan
Map 9
ENVIRONMENT AGENCY
N
0
5 km
40
50
60
20
10
SD
00
SJ
90
SOUTH RIBBLE DISTRICT
LEYLAND
CHORLEY
CHORLEY DISTRICT
HORWICH
BOLTON DISTRICT
WEST LANCASHIRE DISTRICT
WIGAN DISTRICT
SKELMERSDALE
WIGAN
River Ribble
Longton Brook
Centre Drain
Dunkirk Dib
River Douglas
River Lostock
River Yarrow
Syd Brook
River Chor
Anglezarke Reservoir
Yarrow Reservoir
Upper Rivington Reservoir
Lower Rivington Reservoir
Leeds Liverpool Canal
Abbey Brook
River Tawd
Wrightington Ponds
Worthington Lake Reservoir
Smithy Brook
Dean Brook
Ince Brook
Mill Ditch
Ellerbrook
Bannister Brook
Shaw Brook
Culbeck Brook
Wymott Brook
Carr Brook
Rakes Brook
Buckow Brook
A59
A581
A49
A6
A674
A673
A5106
A5209
A577
M6
M61
M58

2.4 FLOOD DEFENCE AND WATER RESOURCES

The flood protection aims of the Agency are to:

(i) Provide effective defence for people and property against flooding from rivers (and sea).

(ii) Provide adequate arrangement for flood forecasting and warning.

The Agency has a duty to exercise a general supervision over flood defence and land drainage matters. For management purposes, the principal watercourses in the catchment have a formal designation of "Statutory Main River" (see map 9 for "Main River" watercourses) and are generally regulated by the Agency. Other "ordinary" watercourses are managed and regulated by the Local Authorities and, where applicable, maintained by them.

Maintenance Regime

The Agency does not own watercourses, except in a few specific locations where the Agency has a particular interest. The ultimate responsibility for the upkeep of a watercourse and any structures that may be contained within it rests with the person or persons on whose land the river is located (the riparian owner).

The Agency has permissive powers on Main River to undertake works of maintenance and improvement and to construct new works according to available resources and priorities. Regular maintenance is essential if the river system is to operate to best advantage at times of high water levels. Such maintenance works may include vegetation and vermin control, repairs to earth embankments and other flood protection structures and the removal of obstructions and blockages.

One of the maintenance problems for the Agency within the Douglas catchment is restricted access to some sections of Main River (including access to culverts with potential blockage problems). This issue is predominant in six areas throughout the catchment namely School Lane culvert, Bannister Brook; Carr Brook (River Lostock to M61); Croston Mill and Croston Village, River Yarrow; Green Lane Syphon, River Douglas (see map 10).

Flood Warning

The Environment Agency takes the lead in dissemination of Flood Warnings, but other organisations including the Local Authorities and the Police are also involved.

The Agency has identified sites most likely to suffer from flooding and has put into place systems to give people living in these areas advanced warnings. The Agency refers to these sites as Formal Flood Risk Zones. In the Douglas Catchment there are two such zones at Wigan on the River Douglas and Croston on the River Yarrow (see map 11).

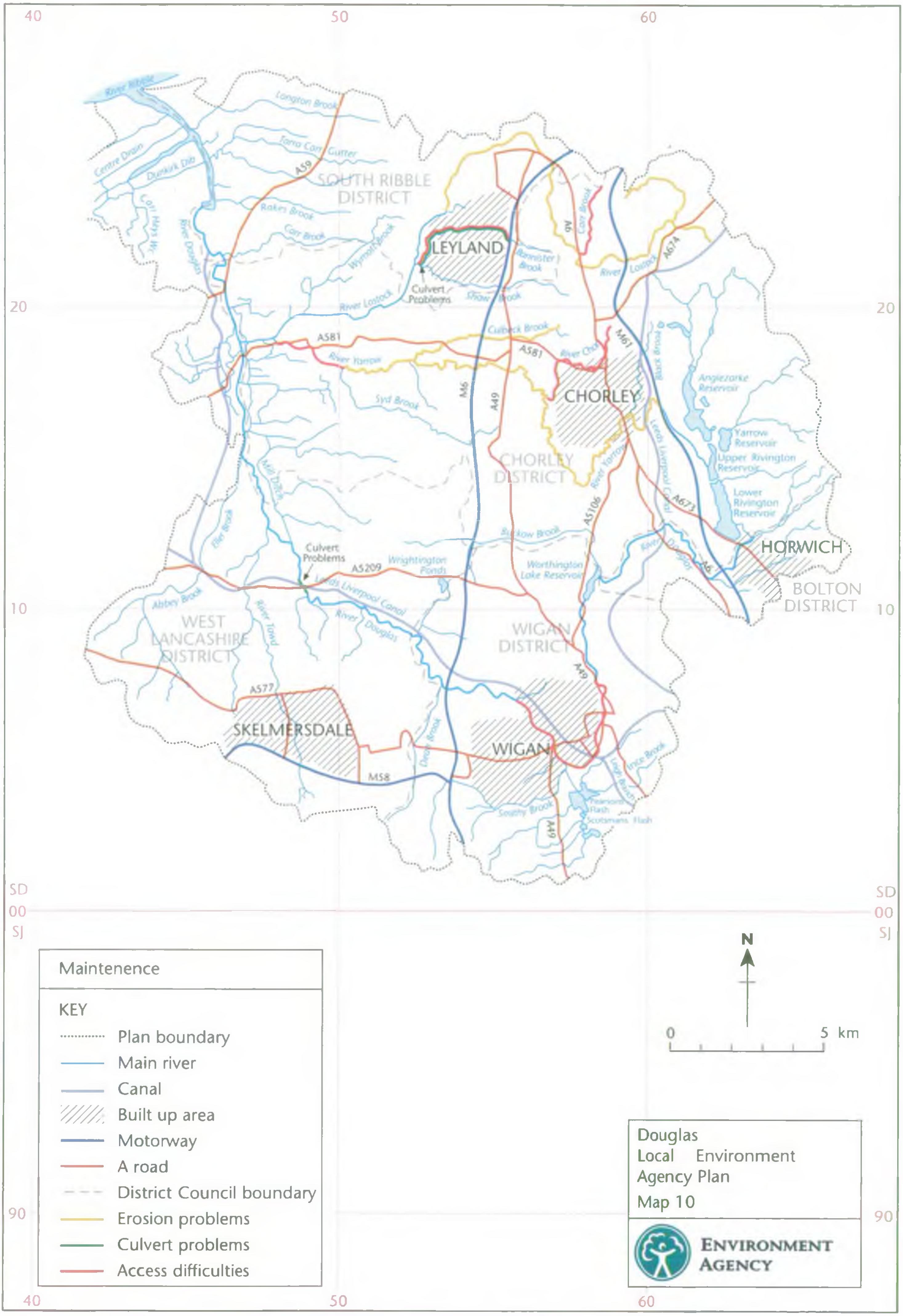
There are other areas within the catchment, adjacent to Main River and Non-Main River watercourses, which have been identified as possible (non-formal) flood risk zones.

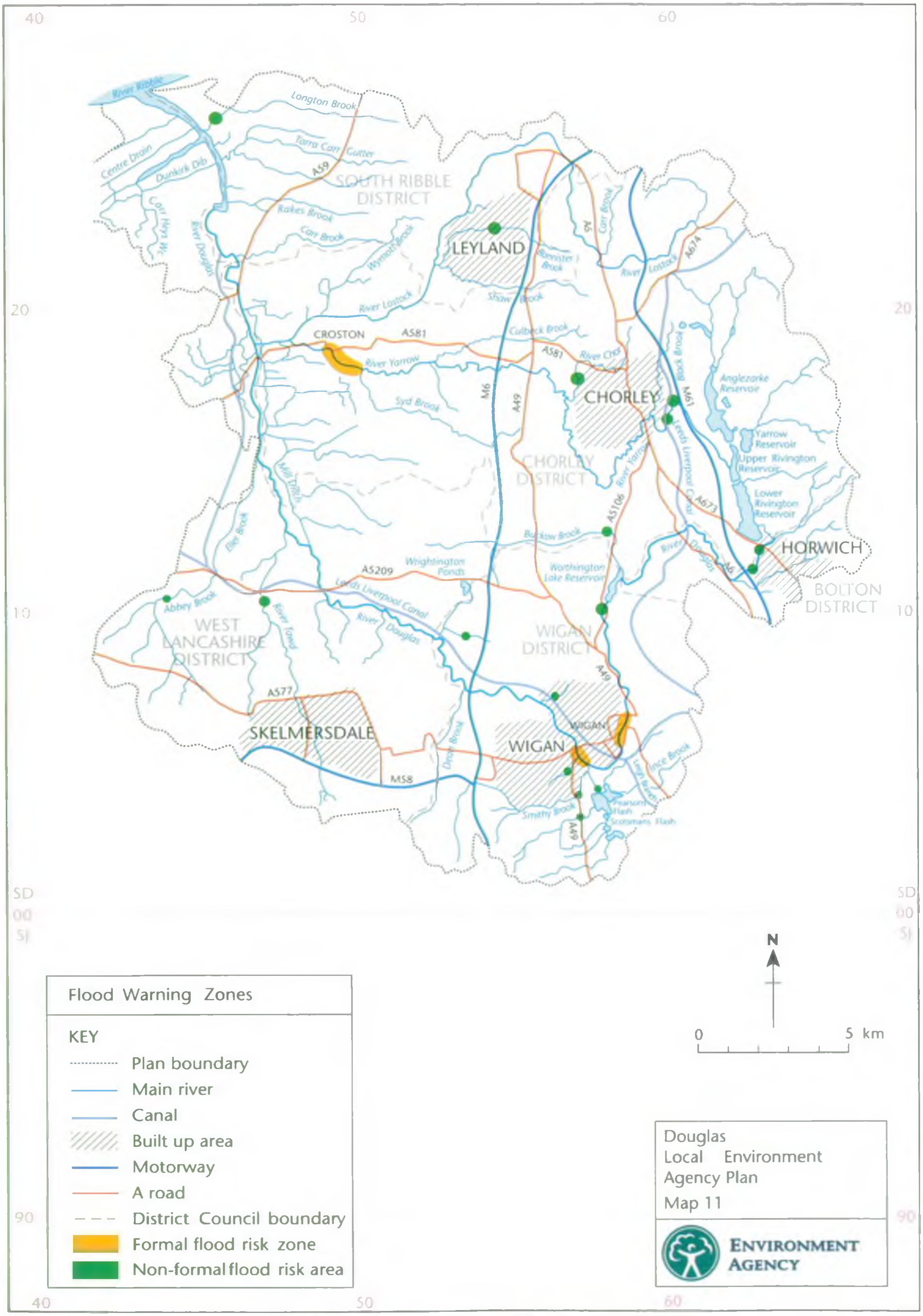
Development Control

An Agency publication "Policy and Practice for the Protection of Floodplains" defines the controls that should be applied to any such proposed development. This ensures that the location of new properties or industrial/retail development is built above the predicted flood levels and does not adversely affect flood routes. Natural flood plain areas are to be retained (otherwise compensated for) and where practicable restored in order to fulfil their natural functions.

Where development outside a floodplain would lead to an increase in predicted flood levels, then sufficient storage must be provided to attenuate volume of run-off, so maintaining existing levels of protection.

The Agency actively encourages the use of more natural methods of surface water drainage (Sustainable Urban Drainage Systems) which can naturally store and treat urban drainage - particularly from highways, prior to discharge into a watercourse.


Maintenence
KEY
Plan boundary
Main river
Canal
Built up area
Motorway
A road
District Council boundary
Erosion problems
Culvert problems
Access difficulties
Douglas
Local Environment
Agency Plan
Map 10
Environment Agency
N
0
5 km
40
50
60
20
10
SD
00
SJ
90
SOUTH RIBBLE
DISTRICT
LEYLAND
CHORLEY
CHORLEY
DISTRICT
HORWICH
BOLTON
DISTRICT
WEST
LANCASHIRE
DISTRICT
WIGAN
DISTRICT
SKELMERSDALE
WIGAN
River Ribble
Longton Brook
Tarra Carr Gutter
Centre Drain
Dunkirk Dib
Rakes Brook
Carr Brook
Wymott Brook
River Lostock
Culvert
Problems
Shaw Brook
Bannister Brook
Culbeck Brook
River Yarrow
Syd Brook
River Chor
Anglezarke
Reservoir
Yarrow
Reservoir
Upper Rivington
Reservoir
Lower
Rivington
Reservoir
Leeds Liverpool Canal
River Douglas
Wrightington
Ponds
Worthington
Lake Reservoir
Abbey Brook
River Tawd
Ellerbrook
Mill Dam
Dean Brook
Smithy Brook
Ince Brook
Scotsmans Flash
A59
A581
A5209
A577
A49
A5106
A6
A673
A674
M6
M61
M58


River Ribble
Longton Brook
Tarra Carr Gutter
Centre Drain
Dunkirk Dib
A59
SOUTH RIBBLE DISTRICT
Rakes Brook
Carr Brook
Wymott Brook
Carr Hays Wr
River Douglas
LEYLAND
Bannister Brook
Shaw Brook
River Lostock
A6
Carr Brook
A674
CROSTON
A581
River Yarrow
Culbeck Brook
River Chor
Syd Brook
M6
A49
CHORLEY
M61
Anglezarke Reservoir
Yarrow Reservoir
Upper Rivington Reservoir
Lower Rivington Reservoir
Leeds Liverpool Canal
A673
CHORLEY DISTRICT
Mill Ditch
Eller Brook
A5106
Bucklow Brook
HORWICH
A5209
Wrightington Ponds
Worthington Lake Reservoir
River Douglas
Leeds Liverpool Canal
BOLTON DISTRICT
Abbey Brook
River Tawd
WEST LANCASHIRE DISTRICT
WIGAN DISTRICT
A577
SKELMERSDALE
WIGAN
Dean Brook
M58
Smithy Brook
Ince Brook
Pearsons Flash
Scotsmans Flash
Flood Warning Zones
KEY
Plan boundary
Main river
Canal
Built up area
Motorway
A road
District Council boundary
Formal flood risk zone
Non-formal flood risk area
N
0
5 km
Douglas
Local Environment
Agency Plan
Map 11
ENVIRONMENT AGENCY

Water Resources

Throughout the life of the Catchment Management Plan for the Douglas there were issues that directly related to the functional role of water resources, which have been addressed. Within this LEAP there are no issues that have been identified directly relating to water resources. Nevertheless it is the intention of this plan to evaluate, prior to implementation, any impact that proposed solutions might have on water resources.

Issues Arising:

Issue 2 Adverse impacts of development on locations at risk of flooding.

Issue 13 The need to locate additional access sites for river maintenance to prevent flooding.

2.5 LANDSCAPE AND HERITAGE

General

The Environment Agency has a duty to conserve and enhance the natural beauty of inland and coastal waters and associated land. The Agency also has to consider the need to protect and conserve buildings and objects of historic interest associated with the aquatic environment.

Opportunities for improvement are achieved by the Agency working with Local Authorities, developers and other partners and in work undertaken as part of the Agency's capital and maintenance programmes.

Local Perspective

English Nature and the Countryside Commission, with help from English Heritage, have produced a map of England that depicts the natural and cultural dimensions of the landscape. This map, "The Character of England; landscape, wildlife and natural features" divides the country into areas of similar character. For each area there is a description of the area and its ecology and landscape character.

Landscape character is what makes one area different from another: what creates that feeling of distinctiveness, sense of place and local identity. Everywhere has character. Assessment of character recognises that all landscapes have a unique character that is valuable. It is not a tool for placing a value on a landscape and comparing it with other areas. It identifies the features that make up the landscape and characterise it. From here you can look at how strong the character is and in what condition it is in. By identifying the characteristics of the area's landscape you can then decide on what needs to be done to reinforce the area's character so it can realise its potential. It is therefore a very useful tool in managing an area's landscape.

The Douglas study area is made up of four character areas: Lancashire Coal measures, Southern Pennines, Lancashire Valleys and the Lancashire and Amounderness Plain.

To the south east is the Lancashire Coal Measures. This is an area of gently undulating hills and valleys. The presence of coal has had a major impact. The past and present mining of coal and industrial development has created a mosaic of degraded farmland, large but scattered urban centres and "flashes" (wetlands resulting from mining subsidence). To the north west of Wigan the hills have quite a few small woodlands giving an enclosed feeling. The urban areas are dominated by nineteenth and twentieth century brick-built housing estates and heavy industry.

To the north east a small area is within the Southern Pennines character Area. This area consists of a gently sloping upland plateau of acid Millstone Grit. The area is mainly used for rough grazing and water catchment for the Rivington Reservoirs. The vegetation is rough grassland and heather moorland. Its highest point is Winter Hill at 456 metres.

The Southern Pennines grades into the Lancashire Valleys which is a hilly area of small woods and pastures with large urban areas like Chorley and Leyland. These three areas all have long and similar history of settlement by man dating back to 6,000 BC when hunter-gatherers exploited the Pennine ridges.

During the early Bronze Age (2,500 BC) the woodlands began to be cleared and the area became converted to agricultural production. This continued until the arrival of the Industrial Revolution. This area was close to the birthplace of the industrial revolution and was one of the first places in Britain to undergo industrialisation.

It was the extraction of coal and the production of textiles that had profound effects on the area's character. Production of textiles began as a cottage industry in the 16th century. However, in the 18th century industrialisation really took hold in the area and by the early twentieth century very little pre-industrial architecture was left. However, the years of industrial growth have left a legacy of industrial heritage that is disappearing as many of the textile mills become derelict or converted to other uses.

Rivers have long been important to influences on human settlement and so often contain large number of archaeologically important features. However, there has been no comprehensive archaeological survey of the area's rivers. Because rivers are both active dynamic systems and heavily modified and maintained by man they are subject to a lot of change. This may mean that many features of archaeological importance may be lost without us even knowing. There is therefore a need to survey and identify those features so that we can take appropriate action before it is too late.

The fourth area is the Lancashire and Amounderness Plain, of which the Lancashire Plain makes up the western third of this LEAP area. The above three character areas are all to a greater or lesser extent hilly areas. The Lancashire Plain is in contrast an area of low lying flat or gently undulating arable farmland, punctuated by woodland blocks and brick built farmsteads. The woodlands and farm buildings provide vertical elements in an otherwise flat, horizontal landscape. To the north west the arable fields are dissected by a complex network of drainage channels which reinforce the angular form of the field pattern.

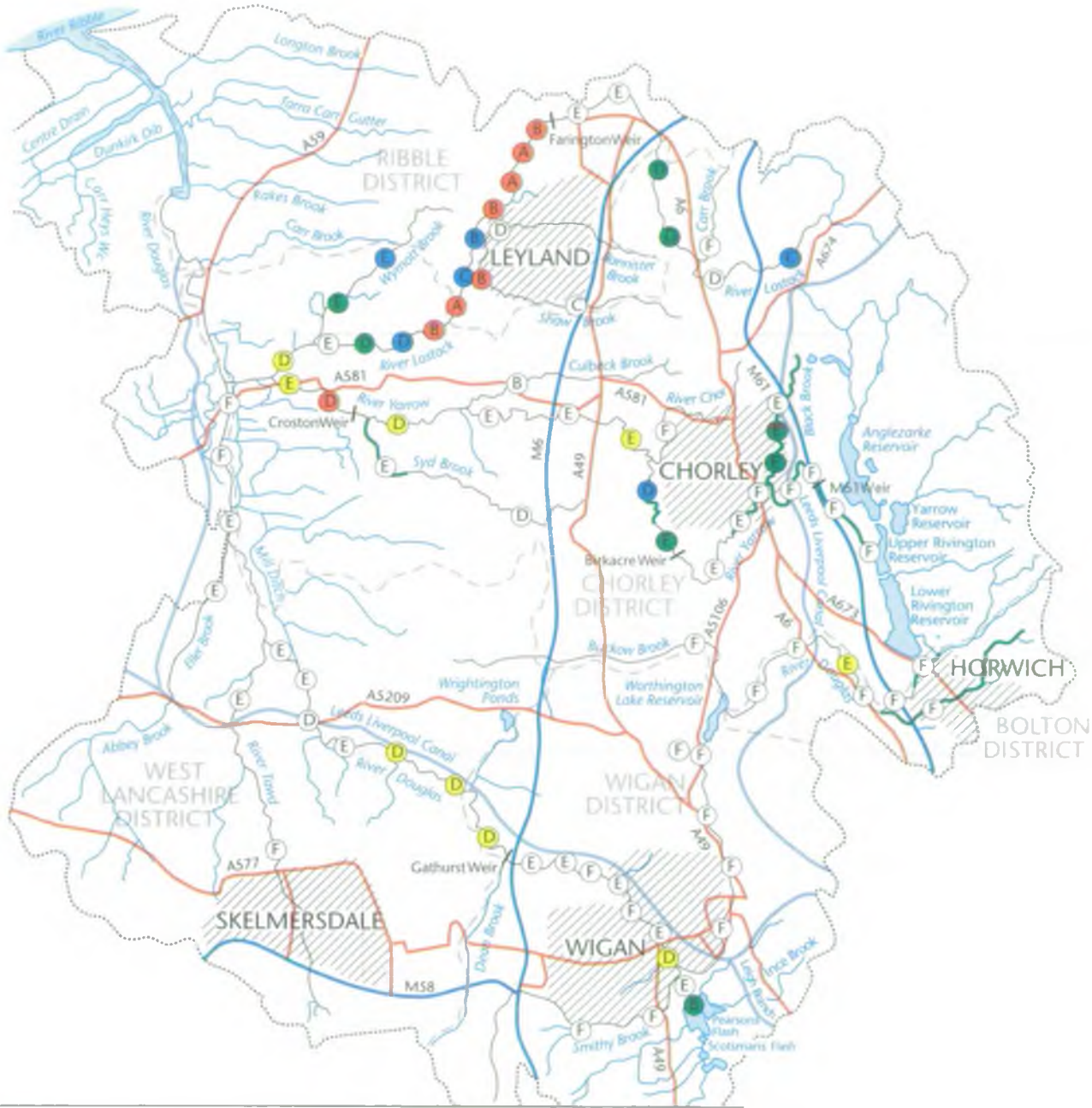
There is limited evidence of human settlement of the plain during the Mesolithic period and later by the Vikings. However, the area was, until the drainage of the mosslands in the 19th century, a very inhospitable place and sparsely populated. Because of the relatively recent settlement of the area there are, unlike the rest of the study area, few historic links with the distant past.

The Agency has carried out a river landscape assessment and identified management strategies for the principal rivers in the area. These are shown on the map (Map 2). A river that runs through an area with a strong character that is in good condition will need a conservation strategy that seeks to conserve this character and manage the particular features that contribute to the character. There are several large lengths of river that are in a good condition and so warrant a conservation strategy. However, due to the history of coal mining and industrial exploitation, growth of housing and intensification of agriculture in the area many lengths of river flow through degraded landscapes. Here the emphasis is on either restoring the character where it is weak or enhancing landscapes that have completely lost their former character. There may also be opportunities to create new types of landscape.

Improving river landscapes has many benefits. A river will be appreciated more and less prone to abuse if it flows through an attractive and well-managed landscape. This will encourage a better sense of pride in the area by the local community. It can also help economically by lifting the area's image as a clean and attractive place thus attracting new employment or even tourists to the area. Landscape improvements will also usually improve the area's value to wildlife. Other features can also be part of the scheme improving recreational access for a variety of users and improving awareness of recreational opportunities. Features of historic interest can also be recorded and preserved

The landscape character map and the river landscape assessment provides the Agency with a good tool for highlighting rivers where landscape improvements are needed and for identifying what features should be improved. However, when considering improvements to rivers in the area it should be remembered that landscape issues is just one of a host of issues that need to be considered when targeting restoration programmes.

Landscape improvements carried out by the Environment Agency are likely to form part of larger schemes where we have a statutory interest like flood defence, water quality or fisheries. Given the limited landownership and statutory powers of the Agency in the wider environment, river landscape improvements away from the actual river channel and not part of a larger capital scheme will rely on the formation of partnerships with landowners, local authorities and other agencies to carry out improvements.



National Classification Scheme Coarse Fish

KEY

- Plan boundary
- Main river
- Canal
- Built up area
- Motorway
- A road
- District Council boundary

Absolute classification:

- A Within upper quintile of sites
- B Within second quintile of sites
- C Within third quintile of sites
- D Within fourth quintile of sites
- E Within lower quintile of sites
- F Absent

Relative classification:

- Within upper quintile of sites
- Within second quintile of sites
- Within third quintile of sites
- Within fourth quintile of sites
- Within lower quintile of sites

River length:

- Trout present
- Trout absent
- Impassable weir

N

0 5 km

Douglas
Local Environment Agency Plan
Map 12

ENVIRONMENT AGENCY

2.6 FISHERIES

Background

The River Douglas system was at one time a recognised salmon fishery. Poor water quality rendered the main river, downstream of Horwich, incapable of supporting fish of any kind. Recent years have seen the emergence of isolated coarse fish populations in the river at Poolstock and below Gathurst Weir which attracts limited angling pressure.

The River Yarrow also suffered from pollution but its decline has been more recent and it is now improving as a coarse fishery with some signs that it may be capable of supporting salmonids.

The River Lostock has very good coarse fish populations downstream of Farington Weir and sea trout have been caught during electrofishing operations around the Leyland area.

The River Tawd has suffered from pollution with only minor coarse fish species being present. However, in 1998 the Environment Agency carried out a provisional stocking of fish from the Leyland Hatchery, 3,000 each of roach, dace and chub.

The Leeds and Liverpool Canal runs through the area from Wigan to Burscough and supports good coarse fish populations as do the still waters including Scotmans and Pearsons Flashes, Worthington Lakes and Anglezarke and Rivington Reservoirs.

The Environment Agency Fisheries Department carries out a 5 year rolling programme of electrofishing surveys on all of its rivers. The Douglas, plus tributaries, were last surveyed in 1995 for a stock assessment, with 82 sites being sampled. The results of these surveys were analysed according to the National Fisheries Classification Scheme. This scheme was developed to allow the fishery status of each site in England and Wales to be compared with a national database of other sites with a similar habitat. (See map 12)

The Flashes complex, the Leeds and Liverpool Canal and the larger still waters in the area are closely connected. Therefore any introductions of disease (by movement of fish) could easily spread throughout the whole system.

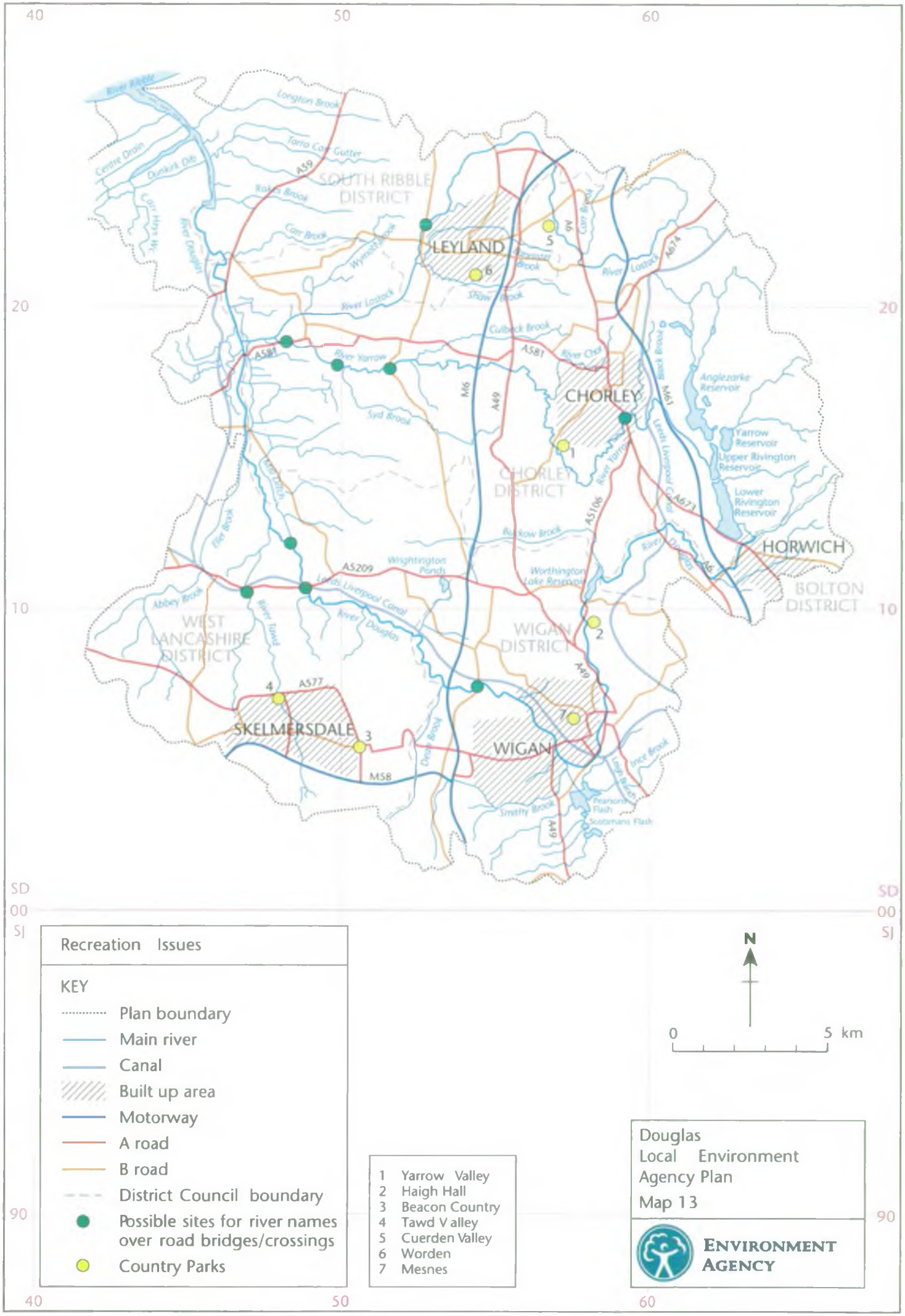
Salmonids

Brown trout are present as isolated populations in the upper reaches of both the River Douglas and the Yarrow and also in Pearl Brook. Salmon and sea trout have been seen leaping at the confluence of the Yarrow and the Douglas, and at Croston Weir and 2 sea trout have been caught in Leyland. These fish however were unable to gain passage into the upper reaches to spawn, due to the presence of in-river obstructions. Similar barriers to fish migration are at Gathurst (Douglas), Birkacre Weir and M61 weirs (Yarrow) and Farington Weir (Lostock)

Dead and dying salmon have been reported below Croston Weir on the Yarrow and on the Douglas as far up as Rufford. (Issue 1).

River engineering has also created barriers to migration (eg. Robin Park) denuding the stretches of river of their fish holding capacity making fish less likely to move through those stretches. The provision of bankside and in-river habitat improvements would ease this situation (Issues 11and 1).

Salmonids spawn on gravel, however many of these areas have been degraded by river engineering (with the loss of riffle and pools) and by the effects of siltation (Issue 1). The 1995 electrofishing survey indicated a lack of 0+ fish (juveniles) in the River Yarrow possibly due to restricted spawning areas. The siltation could be reduced by sensitive riverbank habitat improvement and sustainable practices (tree planting etc). Where areas of clean gravel are present, these must be protected and enhanced by raking to help remove excess silt, and careful monitoring of industrial and housing developments adjacent to watercourses (Issues 1 and 7).



Recreation Issues

KEY

- Plan boundary
- Main river
- Canal
- Built up area
- Motorway
- A road
- B road
- District Council boundary
- Possible sites for river names over road bridges/crossings
- Country Parks

1 Yarrow Valley
2 Haigh Hall
3 Beacon Country
4 Tawd V alley
5 Cuerden Valley
6 Worden
7 Mesnes

N

0 5 km

Douglas
Local Environment Agency Plan
Map 13

ENVIRONMENT AGENCY

Coarse Fisheries

The rivers in this area have only light angling pressure where coarse fish populations are higher at Poolstock (Douglas), on the River Douglas below Gathurst Weir, below Farington Weir (River Lostock) and below Croston Weir (on River Yarrow). The results of the 5 year electro-fishing rolling programme helps the Environment Agency to direct the on-going stocking policy of coarse fish from the Agency's Leyland Fish Farm.

The Leeds and Liverpool Canal from Wigan to Burscough is well fished for coarse fish as are the many tens of stillwaters, the larger of which include Rivington Reservoir (coarse and trout), Anglezarke Reservoir (coarse), Scotmans and Pearsons Flashes (coarse), Worthington Lakes (coarse) and Birkacre in the Yarrow Valley Park (coarse).

Coarse fish require free passage to reach and utilise spawning grounds (some species utilise gravels and others aquatic vegetation) and to allow populations to mix, therefore the same issues as for salmonids apply (Issues I and II).

Aquatic vegetation needs to be managed to provide shelter (from flow rates and predation), as a direct food source and also as a refuge for invertebrates, which in turn is utilised for fish food (Issue 1).

The coarse fish populations of the River Douglas catchment have been enhanced by stocking with chub, dace and roach from the Environment Agency's Leyland Fish Farm (Table 2). The programme of stocking has also included part of a Research and Development Project for the "Optimum Stocking for Hatchery Reared Coarse Fish" on the River Lostock (Table 2).

Table 2: FISH STOCKED INTO THE DOUGLAS SYSTEM

River	Location	Fish species			Reason for Introduction	Date
		Chub	Dace	Roach		
Douglas		10,000	10,000			1994
Douglas		10,000	10,000	10,000		1995
Douglas	Squirrel Bridge, Horwich	1,000	1,000	1,000	Restoration	1996
Yarrow	Eccleston Bridge	10,000	10,000	10,000	Restoration	1996
Tawd	Skelmersdale	3,000	3,000	3,000	Restoration	1997
Yarrow	Eccleston Bridge	12,000	2,000			1997
Douglas	Gathurst	2,000	2,000			1997
Douglas	Squirrel Bridge	1,000	1,000	1,000		1997
Lostock	Above Farington Weir	4,500	4,500	4,500	Research and Development	1996-98

2.7 RECREATION

The Douglas area offers a wide variety of opportunities for both formal and informal recreation, with the river systems and canal corridors being particularly inportant for recreation and wildlife (Map 13). Open space provisions range from green belt land, to urban parks such as Mesnes Park, Wigan and Worden Park, located on the southern edge of Leyland, to the larger country parks such as Haigh Hall (Wigan), Tawd Valley Park, Yarrow Country Park and Cuerden Valley Country Park on the banks of the River Lostock in Bamber Bridge.

The whole area is criss-crossed with public footpaths, public rights of way and bridlepaths including some of the more well-known long-distance trails such as the Douglas Way and parts of the Ribble Way, which is a 70 mile route from the Yorkshire Dales following the River Ribble to the sea. There is also great potential for walking along the linear parks, especially the canals such as the Leeds/Liverpool Canal and the stillwaters and reservoirs. Rivington and Anglezarke Reservoirs are particularly well used by the general public with a network of pathways, cycleways and adventure trails. In addition, there are three waymarked Tawd Valley Park Trails, each with a different theme, running through Tawd Valley Park in Skelmersdale. Parts of the North Lancashire Cycleway, which is a circular route of around 130 miles, also runs through the area and links to the South Lancashire Cycleway in the town of Whalley in the Ribble Valley.

The Agency will encourage the creation, extension and linking of footpaths, where appropriate, to improve public access, and where disturbance to wildlife and livestock will be minimal. The Wigan Council Greenway Networks and South Ribble Borough Council will also encourage the creation of routes connecting areas of open land with urban areas. Despite the abundance of footpaths in the area, many are currently under used. Signage may encourage the general public to use those paths that are currently under-valued as recreational sites.

Plans are also underway in the Leyland, Farington and Cuerden Plan for the creation of a riverside park stretching from South Leyland through the borough to Bamber Bridge, following the path of the River Lostock. This will aim to improve the amenity, landscape and ecological value of this area and is planned to be completed by the Millennium.

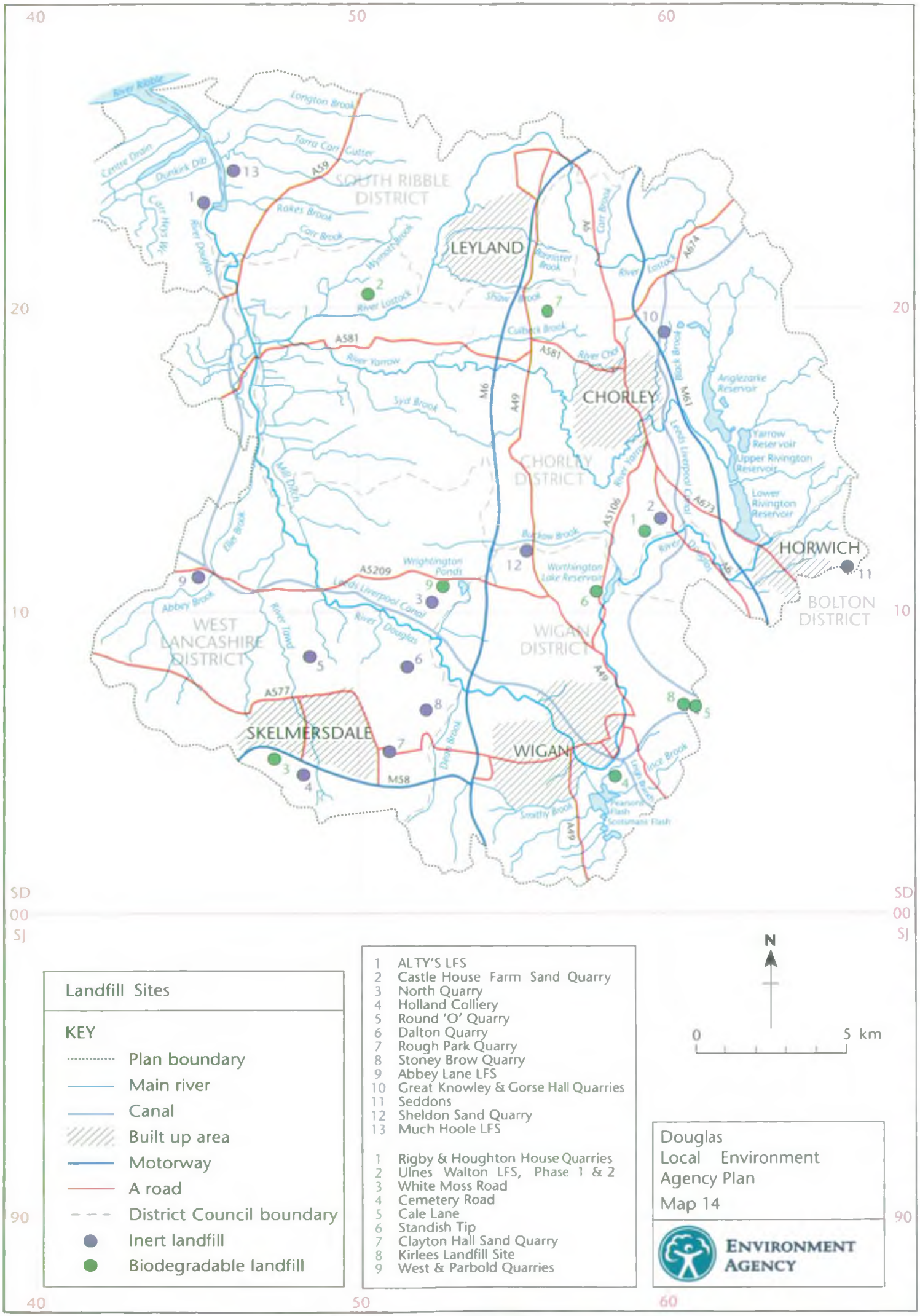
Regular coarse angling takes place on the River Douglas downstream at Appley Bridge, with the River Lostock downstream of Farington Weir. The River Yarrow downstream of Croston Weir is also being fished on a regular basis. Angling is also popular on the canals and the many stillwaters within the Douglas area including the Reservoirs, Flashes and the many dozens of smaller lakes and ponds. Other issues within this LEAP will address the habitat and fish stocks and therefore improve the possibilities for angling throughout the whole area.

Birdwatching is also a popular pastime on many of the rivers and stillwater, especially in the Wigan area, along the Hey Brook Corridor where there are many important nature conservation sites such as Bryn Marsh and Ince Moss SSSI, Abram Flashes SSSI, Red Moss SSSI and Scotmans and Pearsons Flashes. Also, the River Douglas flows into the tidal Ribble Estuary SSSI which forms part of the Ribble and Alt Estuaries Protection Area / Ramsar site, which is given European protection in nature conservation terms for its bird populations and is also a valued site for bird watching.

The River Douglas provides a connection between Rufford Branch of the Leeds and Liverpool Canal and the Ribble Estuary, used frequently by small vessels. The boat yard at Hesketh Bank is utilised by pleasure craft. Rivington Reservoir also has provisions for small sailing craft and there is the possibilty that a rowing club may become established on Lower Rivington Reservoir. This site also has facilities for the disabled, including canoeing, water-skiing, sailing and angling.

The Wigan Flashes support a variety of wildlife and also provide an excellent facility for coarse angling, birdwatching, cycling, rowing, sailing, sailboarding and other water based activities in the centre of the urban environment of Wigan. The Wigan Flashes were formed due to mining subsidence caused by the extraction of coal at Ince Moss Colliery and the subsequent flooding of the adjacent low-lying farmland with water. The Flashes form part of a network of important wetland sites, which occur along the Hey Brook corridor, with the Leeds and Liverpool Canal forming a spine along them. The Wigan Flashes User Group oversees the management of these waters.

The Agency will promote and encourage the development of recreational resources within the Douglas area as appropriate.



Landfill Sites

KEY

- Plan boundary
- Main river
- Canal
- Built up area
- Motorway
- A road
- District Council boundary
- Inert landfill
- Biodegradable landfill

1 ALTY'S LFS
2 Castle House Farm Sand Quarry
3 North Quarry
4 Holland Colliery
5 Round 'O' Quarry
6 Dalton Quarry
7 Rough Park Quarry
8 Stoney Brow Quarry
9 Abbey Lane LFS
10 Great Knowley & Gorse Hall Quarries
11 Seddons
12 Sheldon Sand Quarry
13 Much Hoole LFS

1 Rigby & Houghton House Quarries
2 Ulnes Walton LFS, Phase 1 & 2
3 White Moss Road
4 Cemetery Road
5 Cale Lane
6 Standish Tip
7 Clayton Hall Sand Quarry
8 Kirlees Landfill Site
9 West & Parbold Quarries

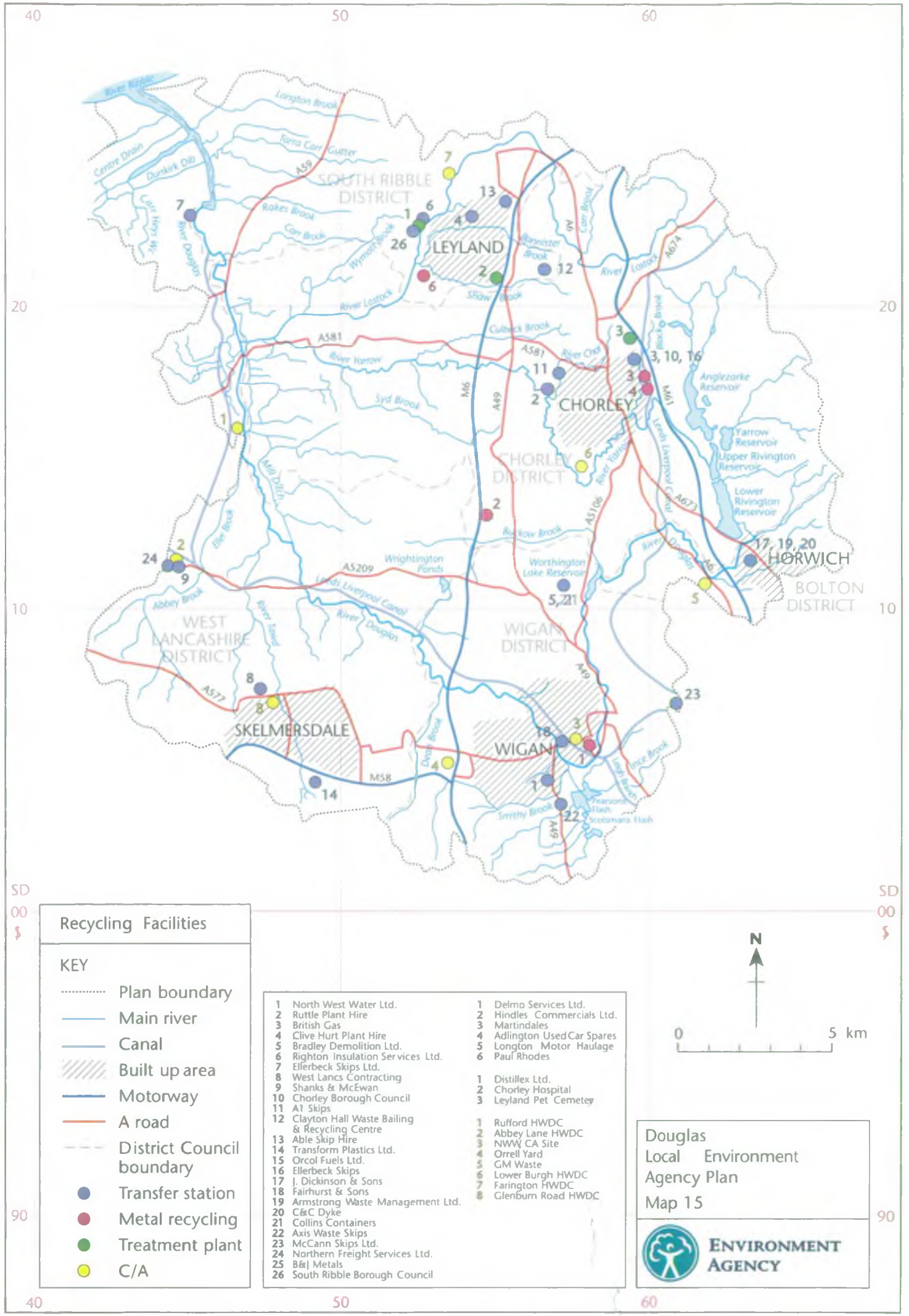
N

0 5 km

Douglas
Local Environment
Agency Plan

Map 14

ENVIRONMENT AGENCY



Recycling Facilities

KEY

- Plan boundary
- Main river
- Canal
- Built up area
- Motorway
- A road
- District Council boundary
- Transfer station
- Metal recycling
- Treatment plant
- C/A

1 North West Water Ltd.
2 Ruttle Plant Hire
3 British Gas
4 Clive Hurt Plant Hire
5 Bradley Demolition Ltd.
6 Righton Insulation Services Ltd.
7 Ellerbeck Skips Ltd.
8 West Lancs Contracting
9 Shanks & McEwan
10 Chorley Borough Council
11 A1 Skips
12 Clayton Hall Waste Bailing & Recycling Centre
13 Able Skip Hire
14 Transform Plastics Ltd.
15 Orcol Fuels Ltd.
16 Ellerbeck Skips
17 J. Dickinson & Sons
18 Fairhurst & Sons
19 Armstrong Waste Management Ltd.
20 C&C Dyke
21 Collins Containers
22 Axis Waste Skips
23 McCann Skips Ltd.
24 Northern Freight Services Ltd.
25 B&J Metals
26 South Ribble Borough Council

1 Delmo Services Ltd.
2 Hindles Commercials Ltd.
3 Martindales
4 Adlington Used Car Spares
5 Longton Motor Haulage
6 Paul Rhodes

1 Distillex Ltd.
2 Chorley Hospital
3 Leyland Pet Cemetery

1 Rufford HWDC
2 Abbey Lane HWDC
3 NWW CA Site
4 Orrell Yard
5 GM Waste
6 Lower Burgh HWDC
7 Farington HWDC
8 Glenburn Road HWDC

N

0 5 km

Douglas
Local Environment
Agency Plan
Map 15

ENVIRONMENT AGENCY

2.8 WASTE REGULATION

Waste Regulation within the Environment Agency covers a comprehensive suite of activities, ranging from the licensing and monitoring of waste management facilities to advising on planning consultations for development of contaminated land sites.

The Douglas is a diverse catchment, it houses Sites of Special Scientific Interest and SNCIs (Site of Nature Conservation Interest). In addition to this there is a high concentration of industry in the areas surrounding Wigan, Blackburn and Preston. The catchment currently has in the region of 64 licensed waste management facilities covering a range of activities, from landfill sites, one of which produces energy from landfill gas, waste transfer stations (which deal with an array of waste types) and scrapyard facilities (Maps 14 and 15).

In addition to licenced waste management facilities, there are in the region of 200 exempt activities in the Douglas catchment. Exemptions are defined by strict parameters laid out in Waste Management Licensing Regulations 1994 and exempt sites have to operate within specific limits and constraints.

The Agency has various consultees as there are other government bodies who have a specific role to play in waste regulation. These include local authorities, both planning and environmental health departments, and Customs and Excise. The planning authority is responsible for granting planning permission which is a pre requisite for the Agency issuing a Waste Management Licence. This establishes the principal use of the land for waste management activities. Environmental Health Departments are responsible for regulating the incineration of waste, if the quantity to be incinerated is between 50kg and one tonne per hour. If these limits are exceeded then it becomes the responsibility of the Agency. With the introduction of the Landfill tax in October 1996, HM Customs and Excise became directly involved in waste management activities.

The Government paper "Making Waste Work" is recognised by the Agency as an instrument to implement and measure best practice. This means that the Agency is committed to ensuring that the most sustainable practice is utilised in relation to the management of waste disposal facilities.

There are four main objectives detailed in the document:
To reduce the amount of waste that society produces
To make best use of the waste that society produces
To minimise the risks of immediate and future environmental pollution and harm to human health
To increase the proportion of waste managed by the options towards the top of the waste hierarchy.

Special waste requires additional specific control. These controls ensure the waste is tracked from the place of generation to the place of final disposal. There are currently 7 special waste sites licensed in the Douglas area.

There is a significant impact upon the Douglas from pollution incidents arising directly from accidents, negligence and mishandling of chemicals and oil. These incidents are concentrated on or around industrial sites and whilst the impact from one unit may appear small an amalgamation of incidents from a number of sites has a noteworthy impact.

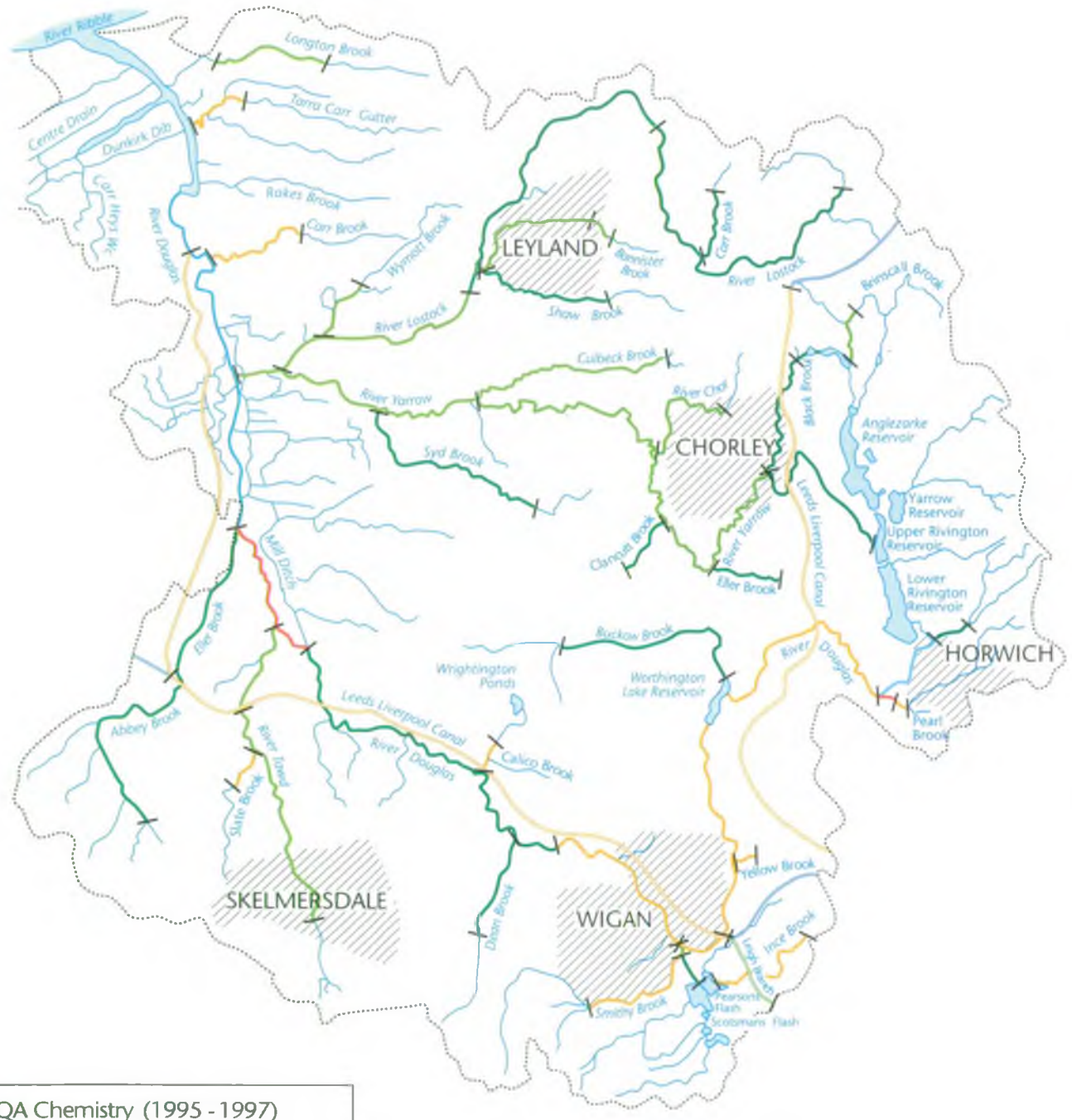
The Environment Agency has implemented a Site Right campaign in other areas and intends to apply this activity to Bradley Hall, Kirklees and Moss Side Industrial Estates in an attempt to make operators aware of bad practices which result in pollution and methodology to prevent further pollution incidents. These will inevitably involve the promotion of links with business clubs and encourage small-to-medium size enterprises to achieve EMAS accreditation and the promotion of ISO140001 where companies deal only with suppliers who have been accredited with having an accountable, environmental policy in place.

There is a new legal framework for dealing with contaminated land. Whilst Local Authorities are the principal regulator under this regime and the Agency has specific duties and powers, which include:

- the provision of advice and information to local authorities
- regulation of special sites and maintenance of a public remediation register
- preparation of a national report on contaminated land in England and Wales.

Welch Whittle is a former colliery in the Chorley area adjacent to Syd Brook. An abandoned mine shaft and scrapyard currently exist at the site but previously it was also the home to an incinerator for organic waste. Since 1990 Lancashire County Council and the former NRA, and now the Agency have undertaken a commitment to monitor the environment and particularly Syd Brook for organics due to the alleged fly-tipping in the abandoned mine shaft. This commitment has been ongoing. The Agency needs to arrive at a decision as to whether to continue with this programme of monitoring or whether to undertake more formal investigations of a physical nature in order to substantiate the fly-tipping allegations and quantify the actual problem.

There is evidence of ochre in the adjacent brook and run-off from the spoil heap that undoubtedly is contributing to the deterioration in water quality. Previous samples of water from various locations along the stretch have shown elevated levels of dichloromethane.



GQA Chemistry (1995 - 1997)

KEY

- Plan boundary
- Main river
- Canal
- Built up area

GQA Class:

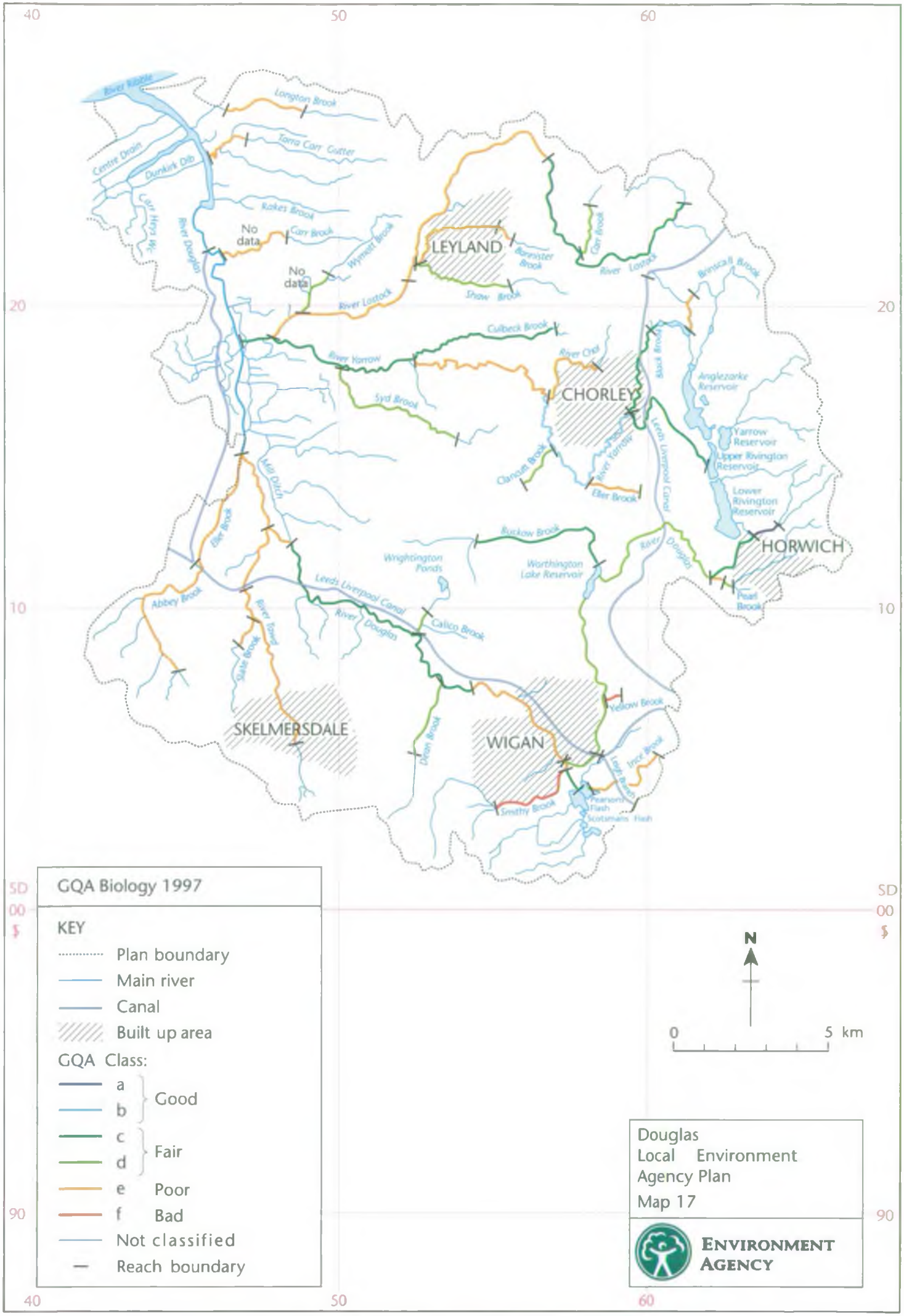
- A, B — Good
- C, D — Fair
- E — Poor
- F — Bad
- Not classified
- Reach boundary

N

0 5 km

Douglas
Local Environment
Agency Plan
Map 16

Environment Agency



GQA Biology 1997

KEY

- Plan boundary
- Main river
- Canal
- Built up area

GQA Class:

- a, b — Good
- c, d — Fair
- e — Poor
- f — Bad
- Not classified
- Reach boundary

Douglas
Local Environment Agency Plan
Map 17

ENVIRONMENT AGENCY

APPENDIX 1

General Quality Assessment and Statutory Water Quality Objectives

The Agency uses two principal schemes for the reporting and management of river water quality: the General Quality Assessment (GQA) scheme and the Water Quality Objectives (WQOs) scheme. These schemes have replaced the National Water Council (NWC) water quality classification system used previously prior to 1994.

The GQA scheme is used to make periodic assessments of the quality of river water in order to monitor geographical and temporal trends. The scheme as presently envisaged will comprise four components - general chemistry, nutrients, aesthetics and biology - each providing a discrete "window" upon the quality of river stretches. The general chemistry and biology components of the GQA scheme are in current use. The remaining two windows are still being developed.

The WQO scheme establishes clear quality targets to provide a commonly agreed planning framework for regulatory bodies and dischargers alike. The proposed WQO scheme is based upon the recognised uses to which a river stretch may be put. It was initially thought that these uses would include: River Ecosystem; Special Ecosystem; Abstraction for Potable Supply; Agricultural/Industrial Abstraction; and Watersports. However, it is now thought that WQOs for all these uses may not be appropriate. The standards defining the five-tiered River Ecosystem (RE) use classes, which address the chemical quality requirements of different types of aquatic ecosystems, were introduced by The Surface Waters (River Ecosystem) Classification Regulations 1994. (Standards for the other uses are still under development). For each stretch of river, a target RE class will be assigned, including a date by which this level of water quality should be achieved. Until WQOs are formally established by legal notice served by the Secretary of State, and therefore exist on a statutory basis, they will be applied on a non-statutory basis through a translation of River Quality Objectives (RQOs) from NWC classes to appropriate RE classes and target dates.

The GQA and WQO schemes are initially being applied only to Rivers and Canals. Schemes for other controlled waters are also under consideration.

Tidal Waters and Estuaries

Tidal Waters and Estuaries are presently still classified using the National Water Council (NWC) scheme which considers dissolved oxygen, aesthetic quality and biological quality and places water quality into one of four classes.

General Quality Assessment

Key stretches (i.e. stretches receiving significant discharges or stretches of significant flow) are routinely monitored at strategic sampling points. Maps 16 and 17 show the 1997 GQA chemistry and biology classification respectively for the classified rivers and canals in the Douglas Area. Summary water quality statistics are tabulated below.

GQA Class Chemistry (1995-1997)		length / km	%
A	Very good	0	0
B	Good	1.6	0.7
C	Fairly good	65.2	27.8
D	Fair	92.5	39.4
E	Poor	70.9	30.2
F	Bad	4.6	2.0
Total		234.8	100

GQA Class Biology 1997		length / km	%
a	Very good	1.5	0.9
b	Good	9.1	5.2
c	Fairly good	39.1	22.4
d	Fair	37.9	21.7
e	Poor	83.4	47.7
f	Bad	3.8	2.2
Total		174.8*	100

* Note - the lower total length excludes several reaches of the Leeds-Liverpool Canal

Several reaches are presently displaying a poorer biological GQA compared to the GQA chemistry class. This may be because of toxic materials or substances present in the water that are not included in the GQA scheme, for example, Yellow Brook is affected by discharges from an abandoned mine and has a GQA biology class f compared to its GQA chemistry class E.

River Quality Objectives (RQOs) for the Douglas Area
Descriptions for the five River Ecosystem Classes are given below:

RE Class	**Description**
RE 1	Water of very good quality suitable for all fish species
RE 2	Water of good quality suitable for all fish species
RE 3	Water of fair quality suitable for high class coarse fish populations
RE 4	Water of fair quality suitable for coarse fish populations
RE 5	Water of poor quality which is likely to limit coarse fish populations
Waters not achieving class RE 5 are of bad quality in which fish are unlikely to be present	

River Quality Objectives in terms of River Ecosystem classes for the Douglas LEAP area were originally proposed in the Douglas Catchment Management Plan 1997 Annual Review and recently confirmed in the 1998 Annual Review.

Both short to medium term and long term RQOs for the Douglas Area are tabulated on the next 2 pages.

River	Reach	length km	RQO short term	RQO long term	Present Status
DOUGLAS	DOUGLAS VALLEY STW TO FWL AT RUFFORD	4.6	No Class	RE4	Significantly failing to meet RE4
DOUGLAS	CROOKE TO DOUGLAS VALLEY STW	10.5	RE3	RE3	Complying with RE3
DOUGLAS	POOLSTOCK BK TO CROOKE	4.5	RE5	RE4	Significantly failing to meet RE4 Complying with RE5
DOUGLAS	PEARL BK TO POOLSTOCK BK	15.5	RE5	RE4	Significantly failing to meet RE4 Complying with RE5
DOUGLAS	RIVINGTON RESERVOIR TO PEARL BK	2.1	RE3	RE3	Complying with RE3
DOUGLAS	QSL OLD LORD'S HEATH TO RIVINGTON RESERVOIR	1.0	RE2	RE1	Significantly failing to meet RE2 & RE1
LONGTON BROOK	QSL LONGTON/HUTTON RD TO FWL	2.9	RE4	RE3	Marginally failing to meet RE3
TARRA CARR GUTTER	QSL AT LONGTON STW TO FWL	1.1	No Class	RE4	Marginally failing to meet RE4
LEEDS/LIVERPOOL CANAL	BURSCOUGH BRIDGE TO DOUGLAS (RUFFORD BR)	11.4	RE4	RE4	Complying with RE4 (Derogation for BOD)
LEEDS/LIVERPOOL CANAL	WHAREHOUSE HALSALL TO LEIGH BRANCH WIGAN	24.9	RE4	RE3	Complying with RE3 (Derogation for BOD)
LEEDS/LIVERPOOL CANAL	LEIGH BRANCH TO JOHNSONS HILLOCK	17.9	RE4	RE4	Complying with RE4
LEEDS/LIV CANAL-LEIGH BRANCH	DOVER BRIDGE TO MAIN CANAL AT WIGAN	5.8	RE4	RE4	Complying with RE4
CARR BROOK	QSL DOLES LANE TO FWL	2.8	No Class	RE4	Significantly failing to meet RE4
YARROW	CULBECK BK TO DOUGLAS	7.0	RE4	RE4	Complying with RE4
YARROW	CHORLEY WwTW TO CULBECK BK	5.9	RE4	RE4	Complying with RE4
YARROW	BLACK BK. TO CHORLEY WwTW	9.1	RE5	RE4	Complying with RE4 & RE5
YARROW	QSL AT RIVINGTON RESVR. TO BLACK BK.	5.2	RE4	RE2	Complying with RE2 & RE4
LOSTOCK	LEYLAND STW TO YARROW	10.2	RE5	RE3	Marginally failing to meet RE3 Complying with RE5
LOSTOCK	M6 TO LEYLAND STW	7.6	RE3 (2000)	RE3	Complying with RE3
LOSTOCK	QSL WITHNELL FOLD TO M6	6.4	RE4	RE3	Complying with RE3 & RE4
WYMOTT BROOK	QSL ORMSKIRK/PRESTON RLY TO LOSTOCK	1.8	RE3	RE3	Marginally failing to meet RE3
MILL (BANNISTER BROOK)	BOW BROOK TO LOSTOCK	3.5	RE4 (2000)	RE4	Complying with RE4
BOW BROOK	QSL A49 TO BANNISTER BK.	0.6	RE4	RE4	Complying with RE4
WADE BK	QSL BUCKSHAW BK. TO MILL BK.	3.3	RE3 (2000)	RE3	Complying with RE3
CARR BROOK	QSL B5256 TO LOSTOCK	1.9	RE4	RE4	Complying with RE4
SYD BROOK	QSL WRIGHTINGTON BAR TO YARROW	8.5	RE4	RE3	Complying with RE3 & RE4
CULBECK BROOK	QSL TO YARROW	5.7	RE3	RE3	Marginally failing to meet RE3
CHOR	QSL A6 TO CONF WITH YARROW	2.7	RE3 (2000)	RE3	Marginally failing to meet RE3
CLANCUTT BROOK	QSL B5251 TO CONF WITH YARROW	2.6	RE3	RE2	Marginally failing to meet RE2 Complying with RE3
ELLER BROOK (YARROW)	QSL LEEDS/LIV CANAL TO CONF WITH YARROW	2.3	RE5	RE4	Complying with RE4 & RE5
BLACK BROOK	QSL AT THE GOIT TO YARROW	5.1	RE3	RE3	Complying with RE3
BRINSCALL BK	QSL GOVERNMENT PROPERTY TO BLACK BK	1.5	RE3	RE3	Marginally failing to meet RE3
ELLER BROOK (DOUGLAS)	QSL WESTHEAD/LATHOM RD TO DOUGLAS	9.9	RE5	RE4	Complying with RE4 & RE5

TAWD	A5209 NEWBURGH TO CONF WITH DOUGLAS	2.5	RE4 (1999)	RE4	Complying with RE4
TAWD	QSL D/S PIMBO IE TO A5209 NEWBURGH	5.8	RE4 (1999)	RE4	Complying with RE4
SLATE BROOK	QSL LATHOM RESEARCH LAB TO R.TAWD	1.4	RE4	RE4	Marginally failing to meet RE4
CALICO BROOK	QSL SKULL HOUSE LANE TO DOUGLAS	0.8	RE4 (1999)	RE4	Marginally failing to meet RE4
DEAN BROOK	QSL A577 TO CONF WITH DOUGLAS	2.8	RE3	RE3	Complying with RE3
POOLSTOCK BROOK	SMITHY BK TO CONF WITH DOUGLAS	0.4	RE4	RE4	Complying with RE4
POOLSTOCK BROOK	PEARSON'S FLASH OUTLET TO SMITHY BK	1.3	RE4	RE4	Complying with RE4
INCE BROOK	QSL WIGAN/HINDLEY RD TO PEARSON'S FLASH	2.7	RE4 (1999)	RE4	Significantly failing to meet RE4
SMITHY BROOK	QSL AT SUMMERSALES SITE TO POOLSTOCK BK	3.4	RE5	RE4	Significantly failing to meet RE4 Complying with RE5
YELLOW BROOK	QSL ASPULL SOUGH TO DOUGLAS	0.4	RE4	RE4	Marginally failing to meet RE4
BUCKHOW (HIC BIBBI) BROOK	QSL RIGBY'S BR TO DOUGLAS	6.8	RE4	RE3	Marginally failing to meet RE3 Complying with RE4
PEARL BROOK	HORWICH WWTW TO DOUGLAS	0.1	No Class	RE4	Significantly failing to meet RE4
PEARL BROOK	QSL B5238 TO HORWICH WWTW	0.6	RE4	RE4	Marginally failing to meet RE4

APPENDIX 2 - GQA - Water Quality Criteria

Class	Water Quality	DO % Sat'n 10 %ile	BOD (ATU) mg/l 90 %ile	Total Ammonia mg/l 90 %ile
A	Very Good	> 80	< 2.5	< 0.25
B	Good	> 70	< 4.0	< 0.6
C	Fairly Good	> 60	< 6.0	< 1.3
D	Fair	> 50	< 8.0	< 2.5
E	Poor	> 20	< 15.0	< 9.0
F	Bad	< 20	> 15.0	> 9.0

APPENDIX 3 - River Ecosystem Classification - Water Quality Criteria

Class	DO % Sat'n 10% ile	BOD (ATU) mg/l 90% ile	Total Ammonia Mg/l 90% ile	Unionised Ammonia mg/l 95% ile	pH Lower limit 5% ile Upper limit 95% ile	Hardness mg/l CaCo3 mean	Dissolved Copper ug/l 95% ile	Total Zinc 95% ile
RE 1	> 80	< 2.5	< 0.25	< 0.021	6.0 – 9.0	< = 10 > 10 & < = 50 > 50 & < = 100 > 100	< 5 < 22 < 40 < 112	< 30 < 200 < 300 < 500
RE 2	> 70	< 4.0	< 0.6	< 0.021	6.0 – 9.0	< = 10 > 10 & < = 50 > 50 & < = 100 > 100	< 5 < 22 < 40 < 112	< 30 < 200 < 300 < 500
RE 3	> 60	< 6.0	< 1.3	< 0.021	6.0 – 9.0	< = 10 > 10 & < = 50 > 50 & < = 100 > 100	< 5 < 22 < 40 < 112	< 300 < 700 < 1000 < 2000
RE 4	> 50	< 8.0	< 2.5		6.0 – 9.0	< = 10 > 10 & < = 50 > 50 & < = 100 > 100	< 5 < 22 < 40 < 112	< 300 < 700 < 1000 < 2000
RE 5	> 20	< 15.0	< 9.0					

APPENDIX 4

National Water Council (NWC) Classification Scheme
Water Quality Classes for Estuaries

Description	Points awarded if the Estuary meets this description
Biological Quality (scores under a, b, c and d to be summed) a) Allows the passage to and from freshwater of all relevant species of migratory fish, when this is not prevented by physical barriers.	2
b) Supports a residential fish population which is broadly consistent with the physical and hydrographical conditions.	2
c) Supports a benthic community which is broadly consistent with the physical and hydrographical conditions.	2
d) Absence of substantial elevated levels from whatever source.	4
Maximum number of points [sum a) to d)]	10
Aesthetic Quality (choose one of a) to d))	
a) Estuaries or zones of estuaries that either do not receive a significant polluting input or which receive inputs that do not cause significant aesthetic pollution.	10
b) Estuaries or zones of estuaries which receive inputs which cause a certain amount of pollution but do not seriously interfere with Estuary usage.	6
c) Estuaries or zones of estuaries which receive inputs which result in aesthetic pollution sufficiently serious to affect Estuary usage.	3
d) Estuaries or zones of estuaries which receive inputs which cause widespread public nuisance.	0
Water Quality (Score according to quality) Dissolved Oxygen exceeds the following saturation levels: 60% 40% 30% 20% 10% below 10%	 10 6 5 4 3 0
The points awarded under each of the headings of biological, aesthetic and water quality are summed. Waters are classified on the following scale: **Class A Good Quality 24 to 30 points** **Class B Fair Quality 16 to 23 points** **Class C Poor Quality 9 to 15 points** **Class D Bad Quality 0 to 8 points**	

APPENDIX 5 - GLOSSARY

Abstraction Licence
Licence to abstract water from a surface or underground source. The maximum annual, daily and hourly abstraction rates are set by the licence.

AMP2 - Asset Management Plan
The second set of Asset Management Plans produced by Water Companies. The Plans cover the Water Companies' known investment of existing and other obligations (such as the operation and maintenance of existing water and wastewater systems) for the 10 year period 1995 to 2005. The Environment Agency is involved in setting priorities for work necessary for environmental improvements within allowed expenditure limits. Prices are controlled by an independent regulator, the Director General of Water Services (OFWAT). AMP 3 follows as the next planning period.

AONB
Area of Outstanding Natural Beauty, notified by the Countryside Commission.

BOD
Biochemical Oxygen Demand. A measure of the polluting potential.

Coarse Fish
See FRESHWATER FISH, CYPRINIDS AND SALMONIDS.

Consumptive Use
Water which is abstracted but not returned to the catchment, either because it evaporates (as in spray irrigation) or is exported for use in another catchment.

County Structure Plans
Statutory documents produced by County Councils outlining their strategy for development over a 10-15 year timescale.

Cyprinids
Fish of the carp family. (See also COARSE FISH, FRESHWATER FISH and SALMONIDS).

Effective Rainfall
Total rainfall minus direct evaporation and the water used by plants for transpiration. This is equivalent to the total resource of a catchment.

EIFAC
The European Inland Fisheries Advisory Commission, an Agency of the United Nations Food and Agriculture Organisation (FAO).

Fish Age
0+ - less than 1 year. >0+ - more than one year.

Flow Measurement Units

m3/s	Cubic metres per second
l/s	Litres per second
Ml/d	Megalitres per day. A megalitre is equivalent to a ten metre cube (approximates to a 4-bedroom detached house).
mg/d	Millions of gallons per day.

Flow Conversion Table

m3/s	Ml/d	mg/d
0.012	1	0.224
0.06	5	1.12
0.12	10	2.24
0.24	20	4.48
0.60	50	11.2
1.20	100	22.4

Freshwater Fish
For the purposes of the Salmon and Freshwater Fisheries Act 1975, fish other than salmon, brown trout, sea trout, rainbow trout and char (see also COARSE FISH, FRESHWATER FISH and SALMONIDS).

FWL
Freshwater Limit.

Hectare
Unit of area 100m x 100m, equal to 2.471 acres.

Impoundment Reservoir
Surface water storage area formed by construction of a dam and supplied only by natural inflow from the upstream catchment.

List 1 Substances
Dangerous substances which are particularly hazardous on account of their toxicity, bioaccumulation potential and persistence and which require special controls. Environmental quality standards are shortly to be introduced into UK law by regulations.

List 2 Substances
Dangerous substances which are less hazardous than List 1 substances. Environmental quality standards are shortly to be introduced into UK law by regulations.

Local Nature Reserve
A nature reserve designated by a Local Authority, frequently owned or managed by a voluntary conservation organisation.

Local Plans
Statutory documents produced by Borough or City Councils to implement the development strategy set out in County Structure Plans. Specific land use allocations are identified.

LTA
Long term average.

Main River
The Agency has permissive powers to carry out works of maintenance and improvement on these rivers.

National Nature Reserve
A nature reserve of national importance, designated and managed by English Nature.

Potable Water Supply
Water supplied for domestic use, including human consumption.

Pool: Riffle
A stretch of river with sections of shallow, fast-flowing water and deeper slow-moving pools.

Ramsar Site
A wetland site of international significance for conservation, notified under international treaty.

Redd
Spawning area.

SAC
Special Area of Conservation. A European legislation classification.

Salmonids
Fish classified by the Salmon and Freshwater Fisheries Act 1975 as belonging to the Salmon family - salmon, brown trout and char.
(Summer-spawning salmonid species such as grayling are classified by the Act as Freshwater Fish). (See also COARSE FISH, FRESHWATER FISH and CYPRINIDS).

SNCI
Site of Nature Conservation Interest. A site of local importance for wildlife or geology, identified by the County Wildlife Trust or the County Council.

SPA
Special Protection Area. A European legislation classification.

Spate Flows
Episodic freshwater flood flows.

SSSI
Site of Special Scientific Interest. A site designated by English Nature as being in need of protection to conserve its outstanding ecological features. Land use management operations within SSSIs are subject to control.

SWID
Surface Water Interceptor Diverter. A structure added to a separate drainage system that diverts polluted surface water to the foul sewer - used to good effect at the Skelmersdale Industrial Estate.

WwTW
Wastewater Treatment Works.

MANAGEMENT AND CONTACTS:

The Environment Agency delivers a service to its customers, with the emphasis on authority and accountability at the most local level possible. It aims to be cost-effective and efficient and to offer the best service and value for money.

Head Office is responsible for overall policy and relationships with national bodies including Government.

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For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

ENVIRONMENT AGENCY GENERAL ENQUIRY LINE
0645 333 111

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water.

ENVIRONMENT AGENCY EMERGENCY HOTLINE
0800 80 70 60

ENVIRONMENT AGENCY