RIVER IRWELL
CATCHMENT MANAGEMENT PLAN
CONSULTATION REPORT
CHAPTER FIVE - RIVER IRK SUB-CATCHMENT

NRA

National Rivers Authority
North West Region
September 1994

ENVIRONMENT AGENCY

IRWELL CATCHMENT MANAGEMENT PLAN

CONSULTATION REPORT

CHAPTER FIVE - RIVER IRK SUB-CATCHMENT

Front Cover photograph : River Irk, Delaunays Road culvert, Blackley

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RIVER IRK

CONSULTATION REPORT

CONTENTS

Page No.

2. CATCHMENT USES AND ACTIVITIES

Page No.

Page No.

Page No.

3. CATCHMENT OBJECTIVES

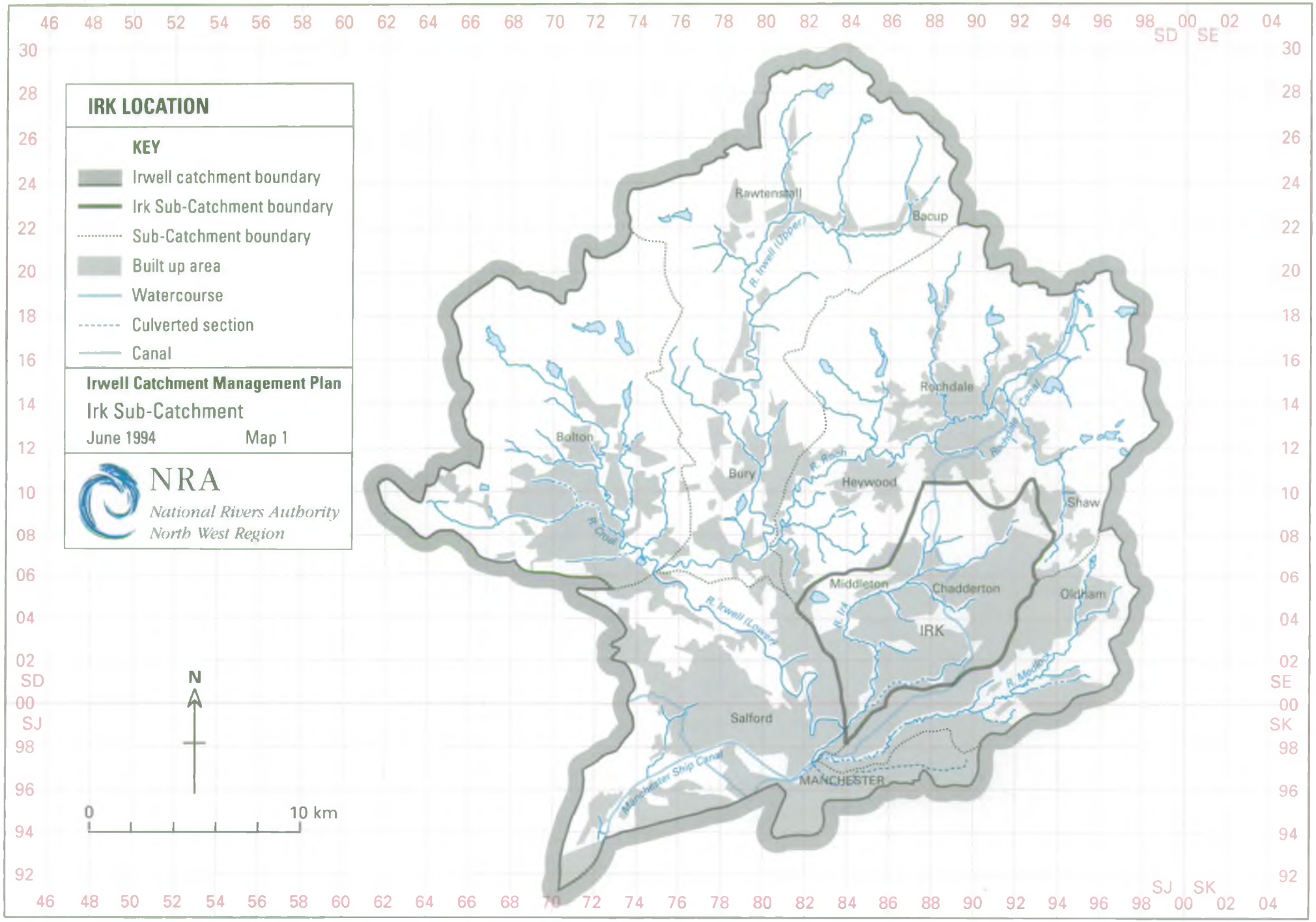
Page No.

4. CURRENT STATE OF THE CATCHMENT

Page No.

5. ISSUES AND OPTIONS

INDEX OF MAPS


IRK LOCATION
KEY
Irwell catchment boundary
Irk Sub-Catchment boundary
Sub-Catchment boundary
Built up area
Watercourse
Culverted section
Canal
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 1
NRA
National Rivers Authority
North West Region
N
0
10 km
Rawtenstall
Bacup
R. Irwell (Upper)
Rochdale
Bolton
Bury
R. Roch
Heywood
Shaw
R. Croal
Middleton
Chadderton
Oldham
R. Irk
IRK
R. Irwell (Lower)
R. Medlock
Salford
Manchester Ship Canal
MANCHESTER
SD
SE
SJ
SK

RIVER IRK SUB-CATCHMENT DETAILS (MAP 1)

Area	78 km^2
Population	183,000

MAIN TOWNS AND POPULATIONS

Middleton	46,000
Chadderton	32,800
Royton	20,800
Cheetham Hill	14,000
Blackley	12,000
Collyhurst	12,000

ADMINISTRATIVE DETAILS

District Councils:-

Manchester County Council (Part)
Rochdale Metropolitan Borough Council (Part)
Oldham Metropolitan Borough Council (Part)
Bury Metropolitan Borough Council (small part)

NRA:-	North West Region - South Area
Water Companies:-	North West Water Ltd.
Principal Sewage Treatment Works:-	Oldham Royton Castleton

TOPOGRAPHY

Ground Levels	Min. Level	40 mAOD
	Max. Level	250 mAOD

GEOLOGY

Solid Geology:-	South West	-	Permo-Triassic Sandstone
	North East	-	Carboniferous Coal Measures
Superficial Geology:-	Variable	-	Predominantly Glacial Till (Boulder Clay) and Sand.

WATER RESOURCES

Availability:-

Groundwater - Generally site specific
Surface water - Good availability

FLOOD PROTECTION

Length of Designated Main River:- (maintained by NRA)	40.25 km.
Riparian owned debris screens cleaned by the NRA on a best endeavours basis	6

WATER QUALITY

Length of River in National Water Council Class

1993 Assessment

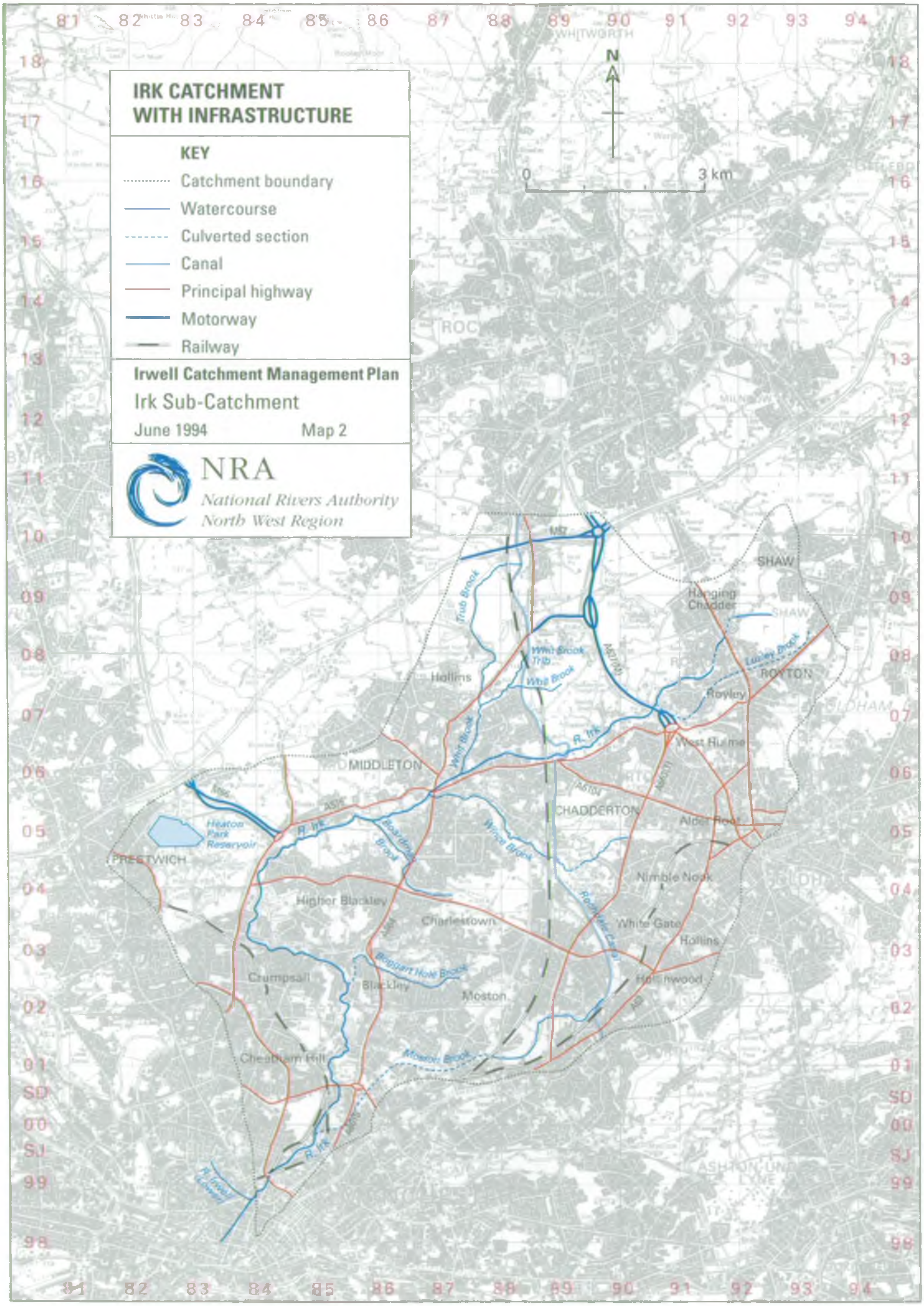
Class 1A (Very Good)	0.0 km.	Class 3 (Poor)	21.1 km.
Class 1B (Good)	0.0 km.	Class 4 (Bad)	9.3 km.
Class 2 (Fair)	8.6 km.		

FISHERIES

Length of salmonid fishery:-	0 km.
cyprinid fishery:-	0 km.

CONSERVATION

Number of Sites of Special Scientific Interest (SSSI) in the catchment	0
Number of SSSI's which are associated with the River Corridor and/or wetland habitats	0
Number of Site of Biological Importance (SBI) in the catchment	24
Number of SBI's associated with River Corridor and/or wetland habitats	19


IRK CATCHMENT
WITH INFRASTRUCTURE
KEY
Catchment boundary
Watercourse
Culverted section
Canal
Principal highway
Motorway
Railway
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 2
NRA
National Rivers Authority
North West Region
N
0
3 km
WHITWORTH
SHAW
Hanging Chadder
ROYTON
Royley
West Hulme
Hollins
MIDDLETON
CHADDERTON
Alder Root
Nimble Nook
White Gate
Hollins
Hollinwood
Higher Blackley
Charlestown
Crumpsall
Blackley
Moston
Cheetham Hill
PREETWICH
Heaton Park Reservoir
R. Irk
Trub Brook
Whit Brook
Whit Brook Trib
Boardman Brook
Wince Brook
Boggart Hole Brook
Moston Brook
Luzley Brook
Rochdale Canal
R. Irwell (Lower)
M62
A6104
A663
A62
SD
SJ
81
82
83
84
85
86
87
88
89
90
91
92
93
94
18
17
16
15
14
13
12
11
10
09
08
07
06
05
04
03
02
01
00
99
98

1. INTRODUCTION

1.1 CATCHMENT DESCRIPTION (MAP 2)

Rising in the hills above Oldham the Irk is one of the smaller rivers flowing to Manchester. This highly urbanised catchment is in a deprived condition especially around Moston Brook. Urban regeneration measures have seen improvements. Historically, early industrial development is evident along the banks of the Irk, and the remains of water powered mills can clearly be seen through areas like Middleton where attractive old reservoirs are available for recreation.

1.2 HYDROLOGY

The River Irk is a highly urbanised catchment of about 78 sq. kms just to the north of Manchester. It rises at an altitude of 170 metres AOD near the village of Shaw and flows in a south-westerly direction through Royton and Middleton where it turns south to enter the Irwell near Victoria Station in the centre of Manchester.

Along its course it has been extensively channelled by man and is also culverted for some of its length, especially in the Middleton area and just prior to its Irwell confluence.

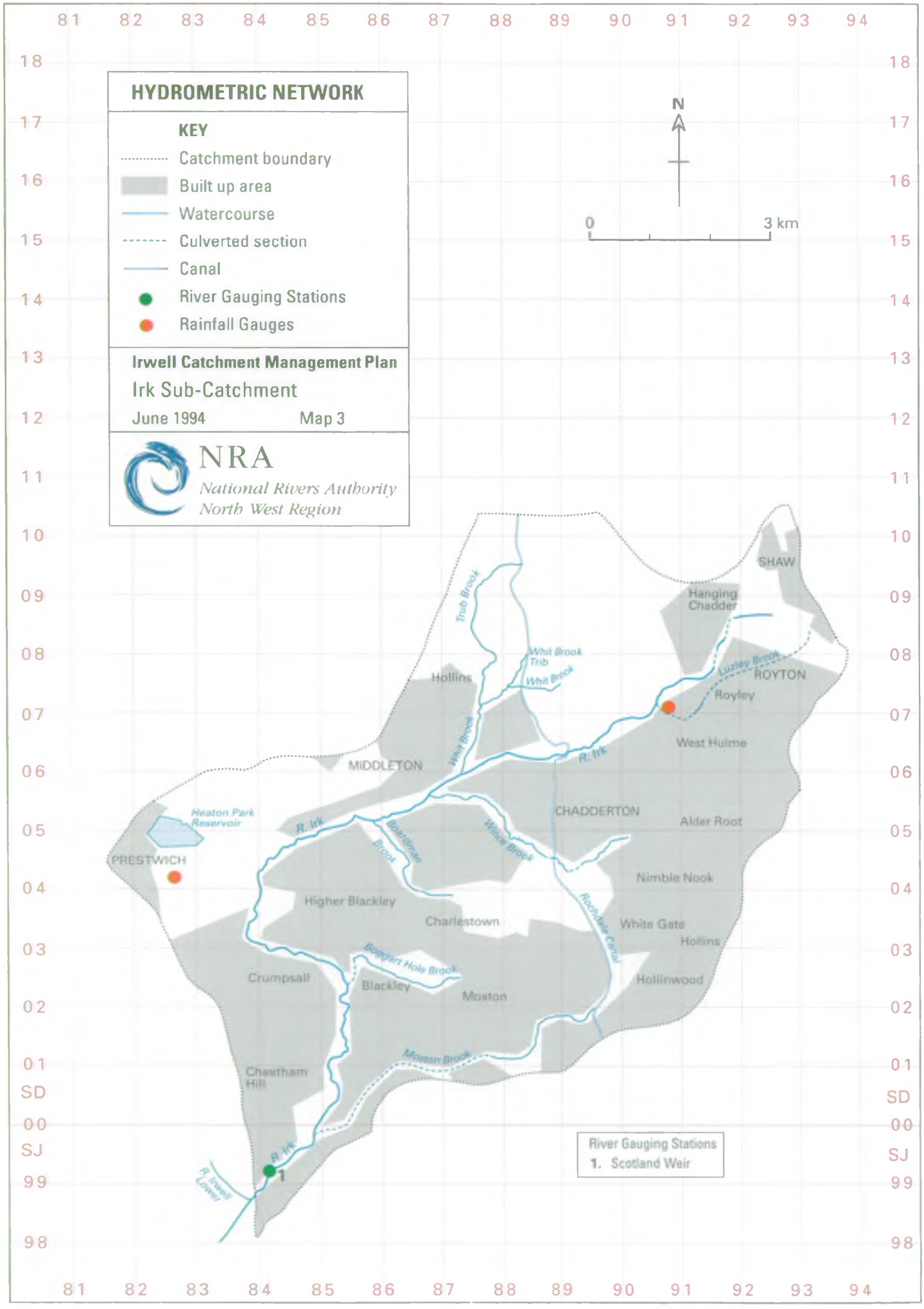
The annual rainfall values in the catchment vary from just under 1100mm in the headwaters of the River Irk to about 900mm at its confluence with the River Irwell. Potential evaporation is in the region of 500mm at its source to about 550mm at its downstream end giving an effective rainfall of between 550mm in the higher areas to under 400mm in Manchester.

The water from the Irk and its tributaries has been, and still is, used for many industrial purposes, though in resource terms the catchment is very under utilised at the present time.

The actual rainfall recorded for the River Irk Catchment in recent years is:-

YEAR	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
RAINFALL (mm)	927	882	1060	963	986	817	835	901	1141	1006

The long term average calculated by the Met. Office from this Authority's own records from 1961 to 1990 is 999 mm at Heaton Park.


HYDROMETRIC NETWORK
KEY
Catchment boundary
Built up area
Watercourse
Culverted section
Canal
River Gauging Stations
Rainfall Gauges
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 3
NRA
National Rivers Authority
North West Region
N
0
3 km
81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 SD 00 SJ 99 98
SHAW
Hanging Chadder
ROYTON
Royley
Lucley Brook
Hollins
Whit Brook Trib
Whit Brook
Trub Brook
West Hulme
MIDDLETON
R. Irk
CHADDERTON
Alder Root
Heaton Park Reservoir
PRESTWICH
Boarshaw Brook
Wince Brook
Nimble Nook
Higher Blackley
Charlestown
White Gate
Hollins
Rochdale Canal
Hollinwood
Crumpsall
Blackley
Moston
Boggart Hole Brook
Moston Brook
Cheetham Hill
R. Irwell
River Gauging Stations
1. Scotland Weir

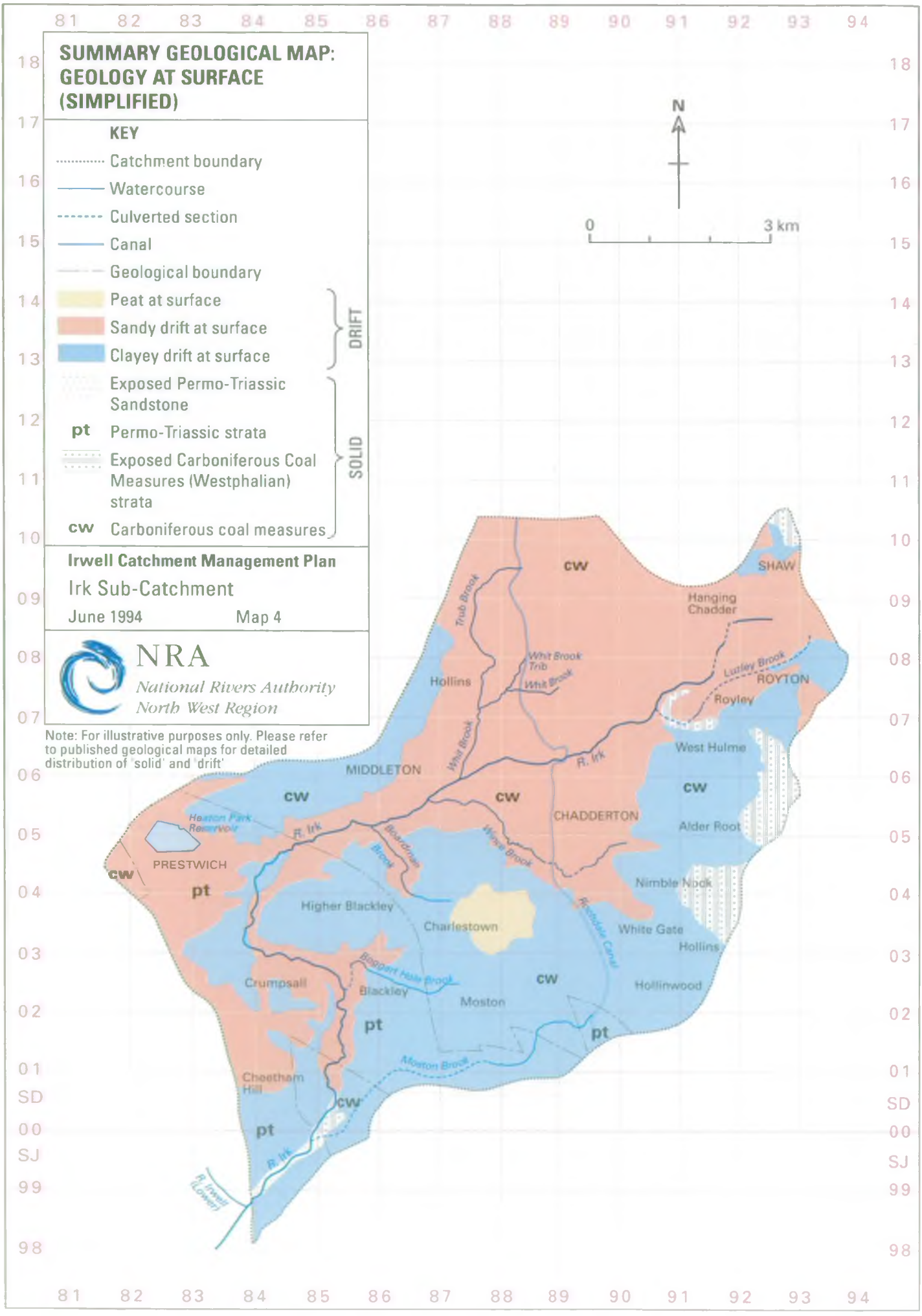
1.3 HYDROMETRIC NETWORK (MAP 3)

Hydrometry is defined as the measurement of water. Hydrometric information is used within the NRA by the Licensing, Groundwater and Hydrology Functions to enable them to meet their statutory duties relating to the Management of Water Resources and is also used in flood forecasting and in the design of flood defences. Additionally, Hydrometric information is used to set water quality standards for both rivers and groundwater and to protect and help improve fisheries.

The level of the River Irk has been monitored under Victoria Station in Manchester at Scotland Weir. This weir is owned by British Rail. Since 1986 the crest of this weir has crumbled away and as British Rail are unable to refurbish the weir, the NRA monitoring of flows has become difficult. It is hoped that during 1994 a river level recording station will be operating upstream at Collyhurst.

River levels have been briefly monitored in the Royton area. North West Water Ltd and the NRA set up experimental stations to monitor level using pressure transmitters and loggers, however, through vandalism and poor choice of sites the experiment was not successful although the experience has been of benefit to NRA staff in the long term.

Rainfall in this catchment is monitored at Royton STW (5" daily rain gauge) and Heaton Park (5" daily rain gauge and 8" logger). These rain gauges are maintained by NRA staff.

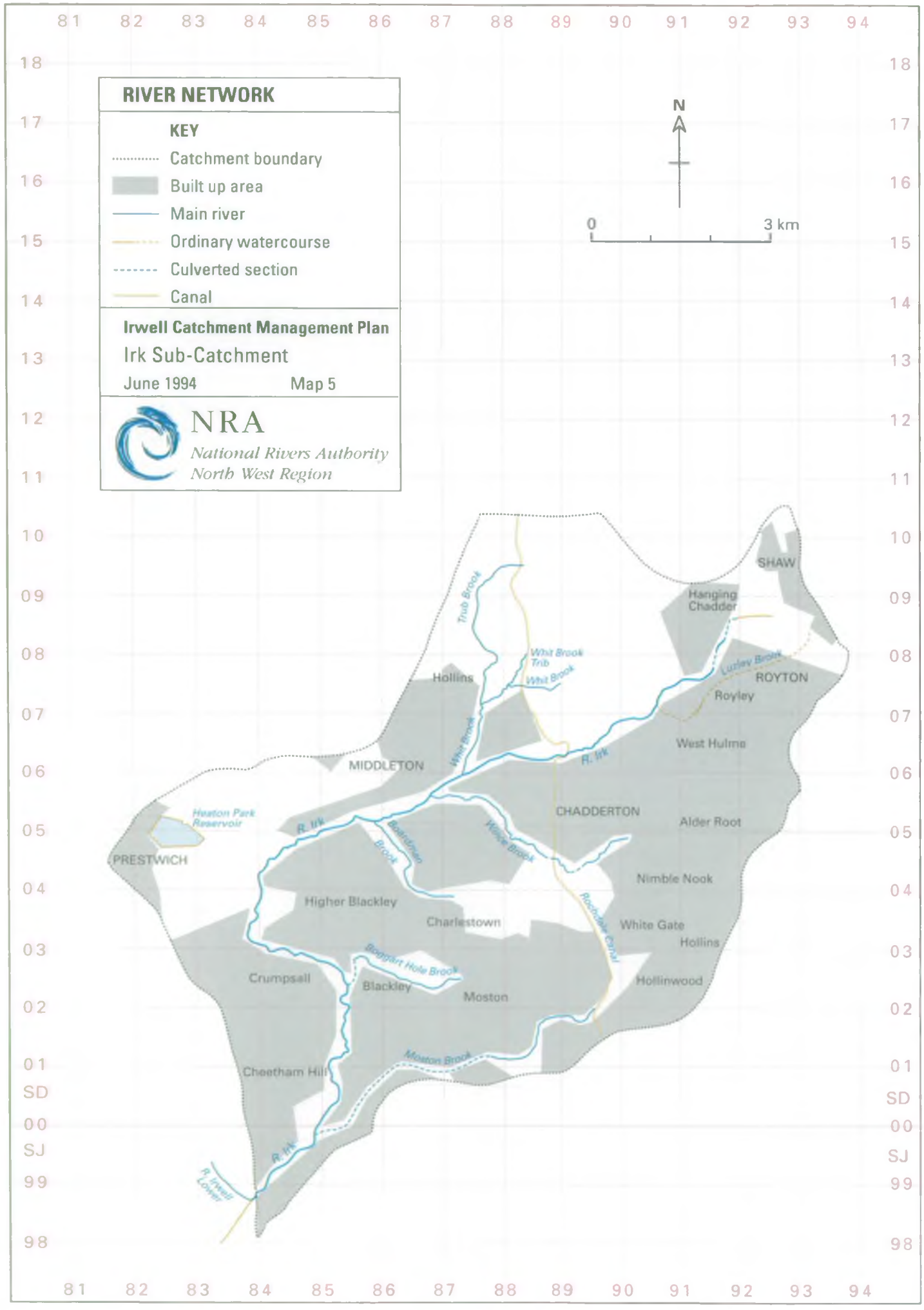

SUMMARY GEOLOGICAL MAP: GEOLOGY AT SURFACE (SIMPLIFIED)
KEY
Catchment boundary
Watercourse
Culverted section
Canal
Geological boundary
Peat at surface
Sandy drift at surface
Clayey drift at surface
DRIFT
Exposed Permo-Triassic Sandstone
pt Permo-Triassic strata
Exposed Carboniferous Coal Measures (Westphalian) strata
cw Carboniferous coal measures
SOLID
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994 Map 4
NRA
National Rivers Authority
North West Region
Note: For illustrative purposes only. Please refer to published geological maps for detailed distribution of 'solid' and 'drift'
N
0
3 km
81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 SD 00 SJ 99 98
cw
pt
SHAW
Hanging Chadder
ROYTON
Royley
Hollins
MIDDLETON
CHADDERTON
West Hulme
Alder Root
PRESTWICH
Higher Blackley
Charlestown
White Gate
Hollins
Nimble Nook
Crumpsall
Blackley
Moston
Hollinwood
Cheetham Hill
Trub Brook
Whit Brook Trib
Whit Brook
Lizzley Brook
R. Irk
Heaton Park Reservoir
Boardman Brook
Moston Brook
Bloggart Hole Brook
Rochdale Canal
R. Irwell (Lower)

1.4 HYDROGEOLOGY (MAP 4)

The solid geology within the River Irk catchment is complex. The south-western half of the catchment is underlain by the major Permo-Triassic sandstone aquifer which extends from beneath Manchester City centre to the south and west. The sandstones usually contain high quality groundwater. Because of their geographical extent and high permeability the sandstones are used for water supply both within and beyond the surface water catchment boundary, albeit mainly for industrial purposes.

The north-eastern part of the Catchment is underlain by Carboniferous Coal Measures (Westphalian) strata. They comprise alternating shales/mudstones, siltstones, sandstones and coal seams which have been folded and faulted. The sandstones tend to act as individual "minor" aquifer units separated by lower permeability shales/mudstones. Groundwater movement is generally by fissure flow. The presence of old coal-workings throughout the Coal Measures can give rise to complex and rapid groundwater flow and can adversely affect groundwater quality.

Much of the area is covered by drift deposits comprising principally low permeability till (boulder clay) interbedded with high permeability sands. The latter form an extensive sheet in the north of the catchment. They will act as minor aquifers in their own right and also allow hydraulic continuity between the surface and sandstone aquifer units in the bedrock where clay is absent. Drift cover is absent on the higher ground near Oldham and in the bed of the Irk in the extreme south-west.


RIVER NETWORK
KEY
Catchment boundary
Built up area
Main river
Ordinary watercourse
Culverted section
Canal
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 5
NRA
National Rivers Authority
North West Region
N
0
3 km
81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 SD 00 SJ 99 98
SHAW
Hanging Chadder
ROYTON
Royley
Lucley Brook
Hollins
Whit Brook Trib
Whit Brook
Trub Brook
MIDDLETON
West Hulme
R. Irk
CHADDERTON
Alder Root
Heaton Park Reservoir
PRESTWICH
Boarsmoor Brook
Wince Brook
Nimble Nook
Higher Blackley
Charlestown
Rochdale Canal
White Gate
Hollins
Boggart Hole Brook
Crumpsall
Blackley
Moston
Hollinwood
Moston Brook
Cheetham Hill
R. Irwell
Lower

1.5 FLOOD DEFENCE (MAP 5)

Flood Defence is generally concerned with ensuring that flood flows in rivers are conveyed with the least possible impact on people and property. This involves the NRA in maintenance of watercourses, construction of new works, development control and flood warning.

Regular maintenance is carried out where necessary in the River Irk Catchment, and includes such items as clearing debris from culverts and bridges, and generally ensuring the maximum flood carrying capacity of the watercourses.

New flood defence schemes are carried out under an agreed programme which covers a ten year period. They must be worthwhile and shown to be value for money, before government and flood defence committee approval is given, and are subject to rigorous financial controls. Generally schemes are carried out to alleviate flooding from watercourses, but may also assist in maintenance activities. Examples of these are:-

- Construction of embankments, retaining walls and flood storage basins to protect against flooding

- Silt traps, debris screens and access ramps to assist with maintenance activities

Development Control is carried out in the River Irk catchment to ensure that new development is discouraged in areas at risk from flooding, and is not allowed to increase the risk elsewhere. Any works carried out on watercourses by others are also subject to control by the NRA.

The NRA operates a Regional Flood Warning service which aims to give the public advanced warning of likely flooding so that appropriate precautions can be taken. When necessary, emergency staff are also deployed by the NRA, to clear blockages to culverts and channels, and provide temporary flood defences using sand bags.

1.6 WATER QUALITY

The River Irk and its major tributaries are classified with regard to water quality. A comprehensive monitoring programme indicates that significant lengths of the catchment are polluted and of poor aesthetic appearance.

Monitoring is also undertaken with regard to the requirements of certain EC Directives and to discharges to the catchment.

The main sources of pollution in the catchment are discharges from the sewage treatment works at Oldham, Royton and Castleton and the sewerage networks feeding them and works outside the sub-catchment. These discharges are the responsibility of North West Water Limited. Significant expenditure will be required for improvements.

Run-off from industrial premises and ochreous land drainage have a more localised impact.

Run-off via storm drains from streets and commercial and residential properties does have a significant impact on water quality but is normally considered outside the scope of pollution control. However many storm water drains are contaminated causing widespread localised pollution because domestic foul water is connected to the storm water drainage system rather than the foul water system. Investigation and resolution of such wrong connections can be difficult.

2. CATCHMENT USES AND ACTIVITIES

2.1 FLOOD DEFENCE

2.1.1 General

This use deals with the provision of effective flood defence for people and property against flooding from rivers and watercourses. Normally flooding is a result of extreme climatic condition, such as very heavy or prolonged rainfall. Flood events are described in terms of the frequency at which, on average, a certain severity of flood is exceeded. This frequency is usually expressed as a return period in years, for example, 1 in 50 years.

The effectiveness of flood defences can be measured in terms of the return period up to which they prevent flooding. The target standard for flood defences should be dictated by the type of land use. For instance, urban areas will require more effective defences than say pasture land.

The NRA's duties and powers relating to Flood Defence are detailed in Section 3.1 of Chapter One, River Irwell Introduction document.

2.1.2 Local Perspective

The River Irk is one of the smaller sub-catchments of the River Irwell, running from its source at Crompton and Royton Golf Course, north of Oldham, through the towns of Chadderton, Middleton, Crumpsall and Blackley, before it reaches the outskirts of Manchester City Centre. The confluence with the River Irwell is just downstream of Victoria Station in the centre of Manchester, the River Irk being fed along its length by seven main tributaries, the major ones being Moston, Boggart Hole Clough, Boardman, Wince and Whit Brooks.

The River Irk is culverted over a significant length beneath Royton and Middleton town centres and underneath the ICI complex at Blackley. With the exception of these areas the majority of the remainder flows in open channel, until it passes under Victoria Station near its confluence with the River Irwell. Localised development has taken place over the years on flood plain where the River Irk flows through the main town centres.

Moston Brook rises at Failsworth and generally flows south-westerly in a steep sided valley, but has been culverted for around half its length. Just upstream of its confluence with the River Irk at Collyhurst, it splits into two culverts, the flow-split being controlled by a manually operated penstock, and operated by Manchester City Council.

Boggart Hole Brook has its source located near Charlestown and flows for the majority of its length through open park land, before meeting the River Irk at Blackley.

Boardman Brook flows from its source at Blackley Golf Course, in a north-westerly direction, passing beneath the A664 Manchester Road before its confluence with the River Irk alongside Pike Fold Golf Course. The brook is culverted under the A664, and this is to be extended further upstream as part of the M66 Motorway extension, currently under construction.

Wince Brook joins the River Irk in the centre of Middleton and the lower reaches within Middleton have been developed over the years on the flood plain areas. The remaining length to its source at Chadderton generally flows through open countryside.

Whit Brook is fed along its length by Whit Brook Tributary, and Trub Brook, both of these together with the upper reaches of Whit Brook flow through open countryside. The lower reaches of the brook to its confluence with the River Irk at Middleton run through flood plain area which has been developed over the past years.

Regular, planned inspections of "main river" channels and structures are carried out in order to programme any necessary maintenance works. Such works are carried out in the Irk Catchment to safeguard the existing standards of flood protection, particularly in the heavily urbanised areas, such as Collyhurst, Blackley and Middleton. The work includes clearing debris blockages from channels, culverts, bridges and trash screens, and also desilting and dredging using mechanical plant.

The NRA clears numerous culvert debris screens within the Irk Catchment, at a general frequency of at least once per week. Such screens prevent large items of debris becoming trapped in culverts and subsequently causing flooding and structural problems.

2.1.3 Flood Warning

The NRA provides information and advice to the Police and Local Authorities for the purpose of giving them sufficiently advanced warnings of likely flooding in known flood risk areas. Forecasts of high river levels are based on rainfall and river level data collected from outstations by the Regional Telemetry System.

2.1.4 Objectives

Flood Defence objectives are detailed in Chapter One, River Irwell Introduction, Section 3.1.

2.1.5 Environmental Requirements

Environmental Requirements relating to Flood Defence are detailed in Chapter One, River Irwell Introduction, Section 3.

2.2 DEVELOPMENT

2.2.1 General

The relationship between NRA activities and the land use planning system is dealt with in Section 2.3 of Chapter One, River Irwell Introduction document.

2.2.2 Local Perspective

The Catchment is within the South Area of the NRA (North West Region). Any new development may be of concern to the NRA, as proposals may have an impact on all our duties and responsibilities. It is imperative that the NRA has an effective and efficient input in the development of the catchment to ensure developments are implemented with our interests fully taken into account.

2.2.3 Local Planning Policy

This small densely urbanised catchment is situated within the former county of Greater Manchester. The northern part is in the Metropolitan Borough of Rochdale MBC, the eastern part is within Oldham MBC, the southern part is within the City of Manchester and a small part of the catchment on the western boundary is contained within Bury MBC.

The main LPA objectives for future development in the Catchment include:

- Protecting and improving the environment.
- Securing growth and development of the local economy
- Promotion of urban regeneration.

The well-established Green Belt policy boundary has strictly limited outward growth of the Catchment's main urban areas.

The watercourses of the Irk have suffered through historical industrialisation and urbanisation in the main towns during the late eighteenth and nineteenth centuries. However, the loss of traditional manufacturing firms and moves towards cleaner production methods has resulted in a healthier and more attractive water environment generally. Positive land-use planning has also played a vital part.

2.2.4 Future Development in the Catchment

The watercourses within the Catchment have been noted for their landscape, wildlife, open land and recreational importance through the preparation of the Development Plans. This will continue to be encouraged by the NRA up to adoption of the Plans and will be used as recommendations in the determination of planning applications. The CMP must support the overall economic and environmental improvements and seek to reduce adverse environmental conditions new development may cause.

The NRA through the planning system will seek to discourage development in areas at risk from flooding, achieve water quality improvements and promote the conservation of the water environment. The main targets of the NRA's policy directions to be pursued through the planning system are detailed in Section 2.7 of Chapter One, River Irwell Introduction document.

2.3 POTABLE (DRINKING) WATER SUPPLY

2.3.1 General

This use relates to the abstraction of water for potable supply use. The principal abstractor is the statutory water company (NWW Limited) though there are small domestic abstractions, particularly in the upper part of the catchment, which are exempt from licensing requirements.

Groundwater may be abstracted from water bearing strata (termed aquifers) via wells or boreholes, or naturally discharge via springs.

The NRA have developed a National Groundwater Protection Policy to safeguard both individual potable sources and groundwater resources in general.

2.3.2 Local Perspective

There are no surface or groundwater abstractions used for public water supply in the River Irk Catchment.

The minor aquifers formed by the sandstone units of the Carboniferous Coal Measures Series have been exploited to provide private domestic and agricultural water supplies in rural areas remote from the mains system. The sandstones may also give rise to seeping discharges to surface waters. The availability of groundwater from these minor aquifers is very site specific, depending on the local hydrogeology and topography.

2.3.3 Supply Objectives and Standards

The NRA has yet to establish formal policy with regard to supply objectives but the following will be, and in many cases are already being actively pursued:

- To manage water resources to safeguard private water supplies.
- To manage surface water resources to meet future demand.
- To set minimum residual flows (MRF's) and minimum control levels (MCL's) where applicable, to protect environmental river needs.
- To ensure compliance with existing MRF's and MCL's through monitoring and enforcement policy.
- To ensure the best utilisation of water resources in the catchment.

- To conserve, augment and/or redistribute, and to ensure the proper use of water resources, where appropriate, to meet potable water demands to appropriate standards of reliability.

- To encourage efficient water use, including leakage reduction.

- To carry out a review of compensation water requirements to ensure the best utilisation of resources for various users.

- To monitor water quality at the appropriate abstraction point to ensure compliance with EC Directive 75/440/EC.

- To maintain and where necessary improve water quality in accordance with existing river quality objectives and Statutory Water Quality Objectives (SWQO's) established.

In dealing with new applications involving groundwater abstractions, the following objectives will be pursued:

- To manage water resources to safeguard private water supplies.

- To manage groundwater resources where possible to meet future demand.

- To protect aquifers from over commitment and ensure groundwater abstraction does not have an unacceptable effect on surface waters and related environmental interests.

- To ensure the best utilisation of water resources in the catchment.

- To conserve, augment and/or redistribute, and to ensure the proper use of water resources where appropriate to meet potable water demands to appropriate standards of reliability.

- To encourage efficient water use including leakage reductions.

- To implement groundwater protection policies.

2.3.4 Customer Supply Requirements

Water Quantity:

- To expect availability of resources within the terms specified in the licence.
- To expect no derogation of supplies when issuing new licences.

Water Quality:

- To expect compliance with relevant standards set in EC Directive 75/440/EC (surface water Abstracted for Drinking water).

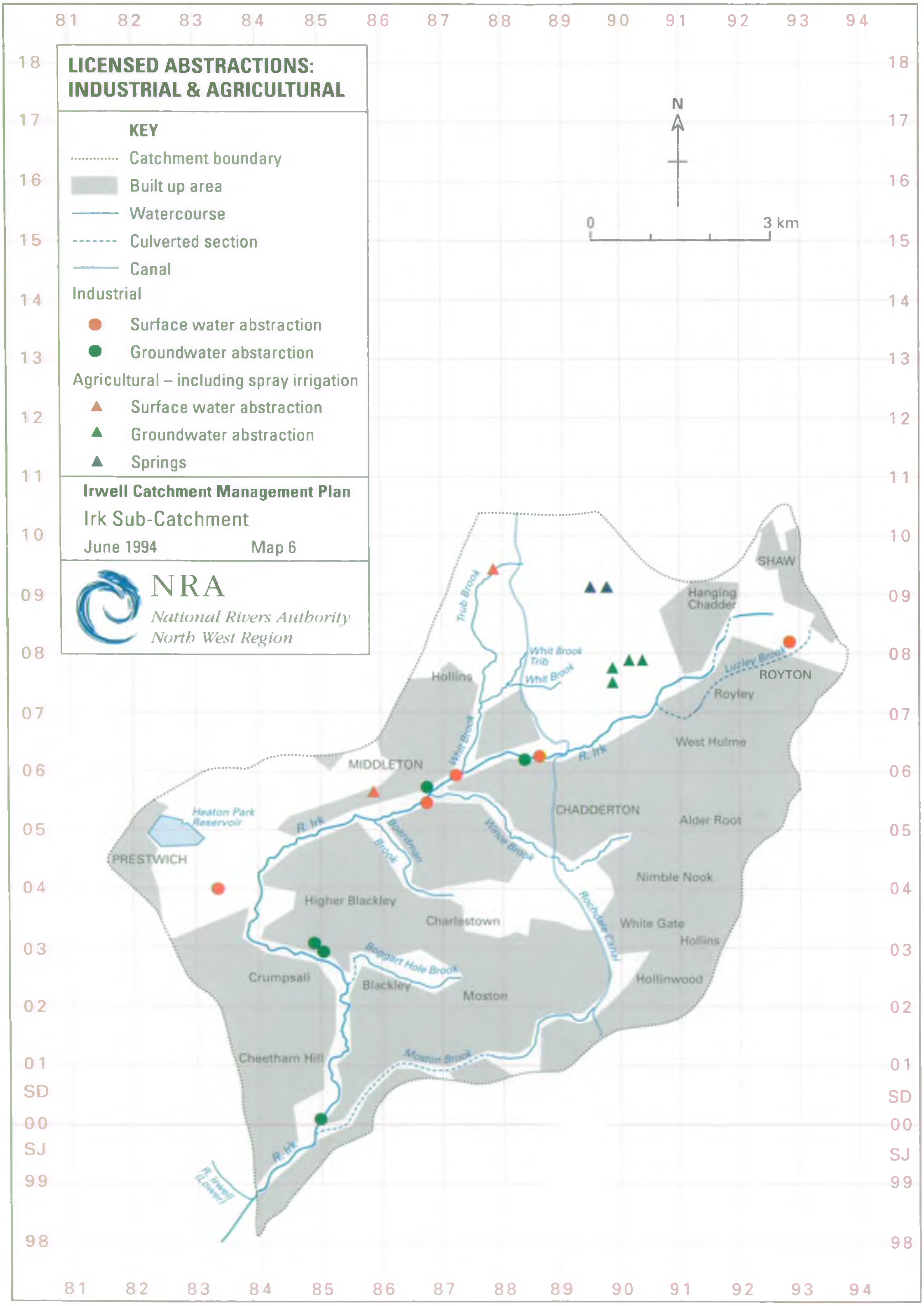
Groundwater Quality:

The major Permo-Triassic Sandstone Aquifer contains high quality groundwater. However, it will have been prone to contamination from past and present land usage, particularly in urban areas where low permeability drift cover is absent.

Groundwater associated with Carboniferous Coal Measures Sandstones are typically high in iron. This can also be acute in groundwaters contained in old mine workings. In addition, mine waters often have elevated levels of chloride and sulphide.

2.3.5 Environmental Requirements

Ensure flows do not fall below an ecologically acceptable level, so that there is no adverse impact on aquatic flora and fauna, natural geomorphology and adjacent habitats.


LICENSED ABSTRACTIONS: INDUSTRIAL & AGRICULTURAL
KEY
Catchment boundary
Built up area
Watercourse
Culverted section
Canal
Industrial
Surface water abstraction
Groundwater abstarction
Agricultural – including spray irrigation
Surface water abstraction
Groundwater abstraction
Springs
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 6
NRA
National Rivers Authority
North West Region
N
0
3 km
81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 SD 00 SJ 99 98
SHAW
Hanging Chadder
Luzley Brook
ROYTON
Royley
Trub Brook
Whit Brook Trib
Whit Brook
Hollins
West Hulme
MIDDLETON
R. Irk
CHADDERTON
Alder Root
Heaton Park Reservoir
Boardman Brook
Wince Brook
PRESTWICH
Nimble Nook
Higher Blackley
Charlestown
Rochdale Canal
White Gate
Hollins
Crumpsall
Boggart Hole Brook
Blackley
Moston
Hollinwood
Cheetham Hill
Moston Brook
R. Irwell (Lower)

2.4 INDUSTRIAL AND AGRICULTURAL ABSTRACTIONS (MAP 6)

2.4.1 General

This use relates to the abstraction of water from ground and surface waters for industrial and agricultural use including spray irrigation. The majority of such abstractions will require an abstraction licence.

2.4.2 Local Perspective

Industrial

There are ten licensed abstractions within the River Irk Catchment for industrial purposes. The total licensed quantity from these sources is 2964.7 Ml/y which is 99.6% of the total licensed abstraction within the catchment. Of this total industrial use 816.7 Ml/y (27.5%) is from surface water sources and 2148.0 Ml/y (72.5%) is from groundwater sources.

Unusually, the River Irk Catchment has more licensed groundwater than surface water, the main licensed groundwater abstractions being from the major Permo-Triassic Sandstone aquifer.

General Agriculture

There are six licensed abstractions for this purpose totalling 6.97 Ml/y which is 0.23% of the total licensed abstraction in the catchment. All these abstractions are from groundwater sources in the form of springs and wells. These licences represent 0.32% of the total licensed groundwater within the catchment. There are also surface sources, particularly in the upper reaches of the catchment which are used for general agricultural purposes and are exempt from licensing requirements.

Spray Irrigation

There are two licensed abstractions for spray irrigation purposes within the catchment. Both of these are from surface water sources. The total licensed quantity is 3.75 Ml/y which is only 0.46% of the total licensed surface water within the catchment.

2.4.3 Supply Objectives and Standards

The NRA has yet to establish formal policy with regard to supply objectives, but the following will be, and in many cases are already being, actively pursued:

- To manage water resources to safeguard direct industrial abstractions.

- To manage water resources where possible to meet reasonable industrial demand.

- To set minimum residual flows (MRF's) and minimum control levels (MCL's) where applicable, to protect environmental river needs.

- To ensure compliance with existing MRF's and MCL's through monitoring and enforcement policy.

- To protect aquifers from over-commitment and ensure that groundwater abstraction does not have an unacceptable effect on environmental waters.

- To ensure the best utilisation of water resources in the catchment.

- To conserve, augment and/or redistribute, and to ensure the proper use of water resources, where appropriate to meet industrial water demands to appropriate standards of service.

- To encourage efficient water use, including leakage reduction.

- To ensure compliance with licence conditions through monitoring and enforcement policy.

- To implement groundwater protection policies.

2.4.4 Customer Requirements

Water Quantity

- To expect availability of resources within the terms specified in the licence.

- To expect no derogation of supplies when issuing new licences.

Water Quality

- To expect maintenance and improvement of water quality in accordance with relevant water quality objectives.

2.4.5 Environmental Requirements

Ensure flows do not fall below an ecologically acceptable level, so that there is no adverse impact on aquatic flora and fauna, natural geomorphology and adjacent habitats.

2.5 RESOURCE USAGE

2.5.1 General

This section summarises the total licensed and actual abstraction within the catchment compared with the available resource. Licensed and current actual usage have been assessed for the catchment.

The available resource is derived from the average annual rainfall for the period 1961-1990 less the average annual evaporation for the catchment. This provides an estimate of the total surface water resource available but is not derived from a detailed assessment of run-off, groundwater recharge or any time elements.

These totals are compared with the total annual licensed abstraction and the actual average consumptive use in 1992. The purpose of the comparison is to illustrate the scale of water resource development within the catchment.

	AVAILABLE RESOURCES IN AVERAGE YEAR JAN - DEC	LICENSED OR COMMITTED ABSTRACTION	ACTUAL AVERAGE ABSTRACTION 1992
Surface	94 Ml/d	3.3 Ml/d	0.08 Ml/d
Groundwater	No Data	7.6 Ml/d	1.63 Ml/d

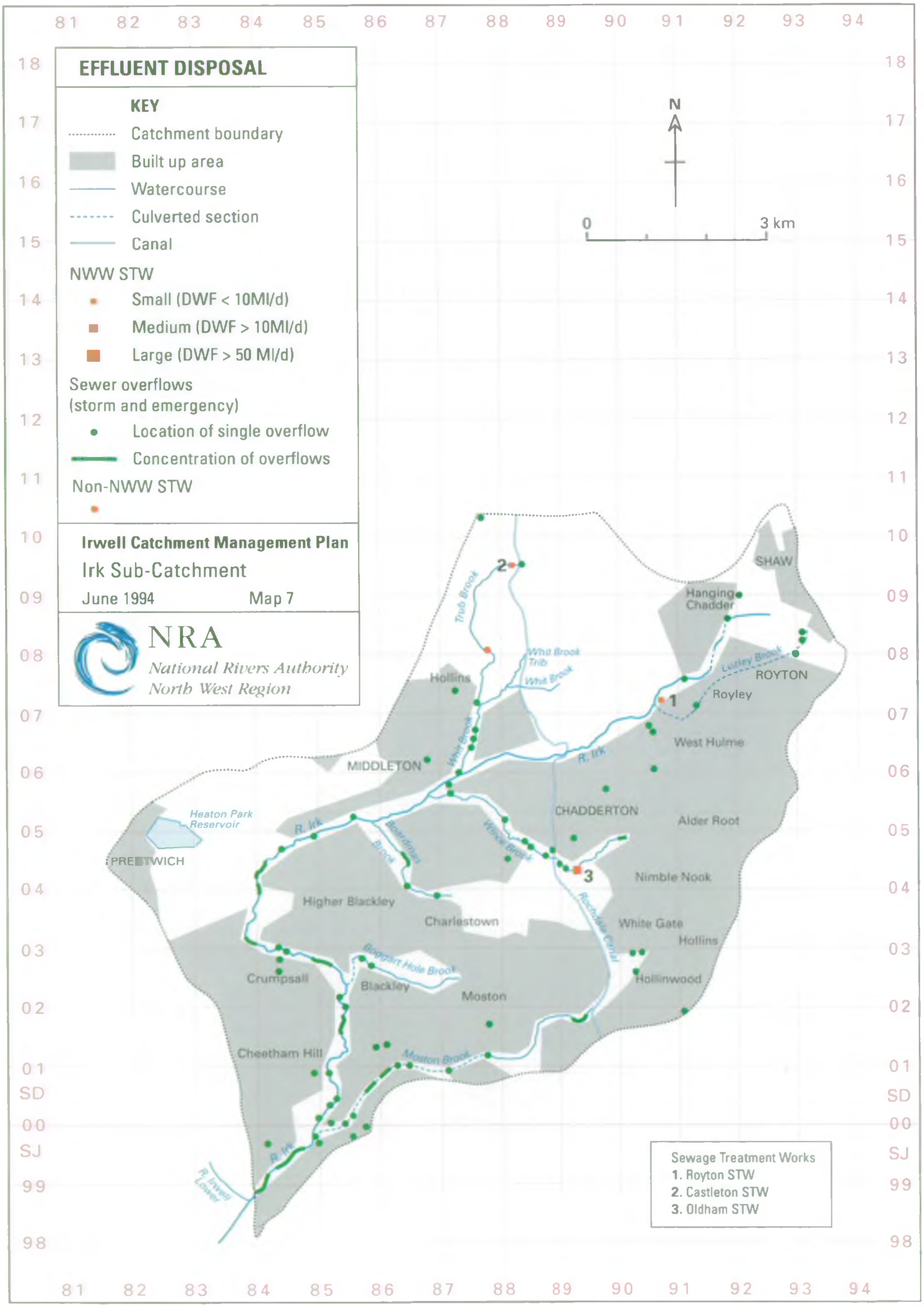
2.5.2 Local Perspective

Surface Water:

Water resources availability in the River Irk Catchment is more than adequate to meet any existing demand and future development. Any problems that may arise will be on a site specific basis on the more minor tributaries.

Groundwater:

In volume terms, the main licensed groundwater abstractions within the catchment are from the major Permo-Triassic Sandstone aquifer for industrial and commercial use (both potable and non-potable). Elsewhere there may be scope for additional abstraction, but this would need to be assessed on an individual basis.


EFFLUENT DISPOSAL
KEY
Catchment boundary
Built up area
Watercourse
Culverted section
Canal
NWW STW
Small (DWF < 10Ml/d)
Medium (DWF > 10Ml/d)
Large (DWF > 50 Ml/d)
Sewer overflows (storm and emergency)
Location of single overflow
Concentration of overflows
Non-NWW STW
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 7
NRA
National Rivers Authority
North West Region
N
0
3 km
SHAW
Hanging Chadder
ROYTON
Royley
Luzley Brook
West Hulme
Trub Brook
Whit Brook Trib
Whit Brook
Hollins
MIDDLETON
R. Irk
CHADDERTON
Alder Root
Heaton Park Reservoir
PRESTWICH
Boardman Brook
Wince Brook
Nimble Nook
Higher Blackley
Charlestown
White Gate
Hollins
Rochdale Canal
Crumpsall
Boggart Hole Brook
Blackley
Moston
Hollinwood
Cheetham Hill
Moston Brook
R. Irwell Lower
Sewage Treatment Works
1. Royton STW
2. Castleton STW
3. Oldham STW
SD
SJ

2.6 EFFLUENT DISPOSAL (MAP 7)

2.6.1 General

This use principally relates to the disposal of domestic and industrial effluents to the river system. Dependent on nature effluents may be discharged continuously or intermittently.

Continuous Effluents

Continuous discharges are of fully treated effluent from sewage treatment works and trade effluent treatment plants.

The more significant sewage treatment works are almost exclusively operated by water companies, in this case North West Water Limited. Such sewage works may receive both domestic and industrial waste. Houses and other premises remote from the established sewerage network may use an individual sewage treatment plant with discharge to watercourse as an alternative to septic tank or cess pit as a means of disposal of foul drainage.

Industrial concerns may also opt to treat their trade waste at their own treatment facility with discharge to watercourse.

The quality of such continuous effluents is controlled by consents issued by the NRA. In the past this has been the case for all types of continuous effluents. However, discharges from certain prescribed industrial processes are now authorised by HMIP under Integrated Pollution Control (IPC).

Intermittent Effluents

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

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

2.6.2 Local Perspective

Continuous Effluents

There are three North West Water Ltd STWs within the River Irk Catchment. Oldham STW is the largest with a dry weather flow of 48.6 Ml/d. Royton STW and Castleton STW have dry weather flows of 9.7 and 1.6 Ml/d respectively.

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

There are no industrial discharges direct to river.

The locations of these discharges are shown on Map 7.

Intermittent Effluents

There are over 120 identified storm and emergency sewer overflows within the Irk Catchment. Their locations are shown on Map 7.

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

2.6.3 Environmental Objectives

- To control continuous and intermittent discharges in such a way as to permit achievement of the water quality objectives for the catchment.

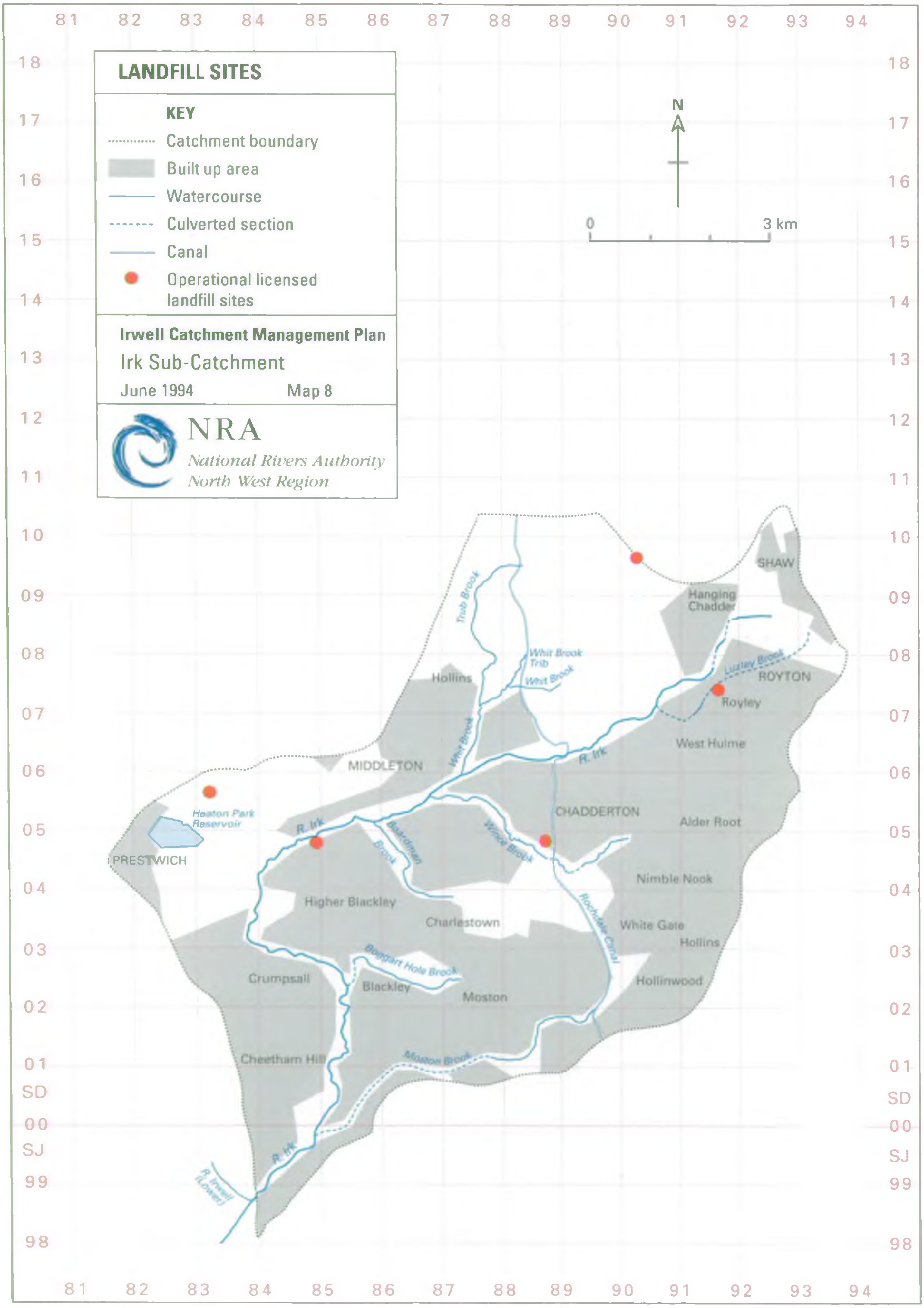
2.6.4 Environmental Requirements

Water Quality

- No deterioration in water quality upstream of discharges that would increase their impact.

Water Quantity

- No significant diminution in flows upstream of discharges that would increase their impact.



LANDFILL SITES
KEY
Catchment boundary
Built up area
Watercourse
Culverted section
Canal
Operational licensed landfill sites
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 8
NRA
National Rivers Authority
North West Region
N
0
3 km
SHAW
Hanging Chadder
Luzley Brook
ROYTON
Royley
West Hulme
Hollins
Trub Brook
Whit Brook Trib
Whit Brook
MIDDLETON
R. Irk
CHADDERTON
Alder Root
Heaton Park Reservoir
PRESTWICH
Boardman Brook
Wince Brook
Nimble Nook
Higher Blackley
Charlestown
Rochdale Canal
White Gate
Hollins
Crumpsall
Boggart Hole Brook
Blackley
Moston
Hollinwood
Cheetham Hill
Moston Brook
R. Irwell (Lower)
SD
SJ

2.7 LANDFILL SITES (MAP 8)

2.7.1 General

The NRA is a statutory consultee on Waste Disposal matters. It is also a statutory consultee of Planning Authorities under the Town and Country Planning Acts. A valid planning permission is the means by which aftercare provisions, including surface water drainage and flood protection measures where appropriate, on closed landfill sites can be regulated. The Waste Disposal Licence relates to the operational phase of any site.

It is recognised that a wide range of waste disposal operations require a Waste Disposal Licence. These include scrap yards, transfer stations, incinerators, waste storage, etc. Often the greatest threat to groundwater quality is posed by landfill activities.

2.7.2 Local Perspective

Each site is considered on an individual basis, the location of a site must not pose an unacceptable risk to water resources.

A waste disposal licence for a site must specify engineering measures to be taken so as to minimise the potential for any leachate generated to escape. In addition, a monitoring regime designed to confirm the integrity of the containment structure must be specified.

2.7.3 Objectives

- To ensure landfill activity doe not compromise water quality or water resources and proceeds in accordance with advice given in the Groundwater Protection Policy.

- To safeguard existing standards of flood protection to land and property downstream of surface water discharge points from landfill sites.

2.7.4 Environmental Requirements

Water Quality:

- Compliance with EC Directives on dangerous substances discharged to groundwaters.

- Implementation of the NRA Groundwater Protection Policy.

- Prevention of pollution of controlled waters.

- Appropriate monitoring of effects on surface and groundwaters.

- No deterioration of groundwater or surface water quality.

Water Quantity:

- No detriment to the availability of water resources.

- Minimise loss of unsaturated zone cover to aquifers.

Physical Features:

- Minimise the occurrence of slipping.

- Maintenance of the integrity of the river channel adjacent to landfill sites.

- Restoration of all sites to an acceptable environmental standard taking into account the opportunities for conservation, recreation and amenity.

- Any necessary flood defence works should be carried out in an environmentally sensitive manner.

- Safeguard features of the water environment which are of ecological or landscape value.

2.8 MINERAL EXTRACTION

2.8.1 General

Mineral extraction can affect both groundwater quality and quantity. It can restrict recharge to an aquifer and divert flow. In addition, purification which occurs as water percolates through the unsaturated zone cannot occur if that zone has been removed by excavation. Subsequent use of mineral extraction sites for landfill also proposes a significant threat to groundwater quality.

2.8.2 Local Perspective

Mineral workings are difficult to quantify within the River Irk Catchment. Underground workings for coal are both numerous and extensive. Other minerals may also have been worked underground locally, albeit on a small scale. Many such workings are not recorded.

Surface mineral workings are likely to be widespread, and also largely unrecorded. The most common types are clay or marl pits, sand and gravel pits, hard rock (sandstone) quarries at outcrop areas and occasional shale pits. Many, if not most of such old workings may have long since been filled in, often with waste from a variety of sources.

2.8.3 Objectives and Standards

Wherever possible water resources must be preserved and protected. Mineral workings must be operated under the guidance given with the NRA's "Policy and Practice for the Protection of Groundwater".

2.8.4 Environmental Requirements

Water Quality:

- No deterioration of groundwater or surface water quality.

Water Quantity:

- No detriment to the availability of water resources.
- Minimise loss of unsaturated zone cover to aquifers.

Physical Features:

- Minimise the occurrence of slipping.
- Maintenance of the integrity of the river channel adjacent to extraction sites.
- Restoration of all sites to an acceptable environmental standard taking into account the opportunities for conservation, recreation and amenity.
- Safeguard features of the water environment which are of ecological or landscape value.

2.9 GROUNDWATER PROTECTION

2.9.1 General

Groundwater is a vital natural resource and under particular threat from the effects of human activity. Once polluted, groundwater is often difficult and very expensive to remediate. Therefore, preventing groundwater contamination is a major objective of the NRA.

The Authority's "Policy and Practice for the Protection of Groundwater" sets out a national framework for the protection of both groundwater resources in general and sources (abstractions) in particular from the potential polluting effects of man's activities.

The policy classifies groundwater vulnerability according to the nature of the overlying soil cover, the presence and nature of any drift cover, the nature of the strata and the depth to the water table.

It considers groundwater resources in terms of major, minor and non-aquifer, depending on their ability to yield water and support groundwater abstractions. However, it emphasises the need to protect all groundwater, whether or not currently developed. The policy uses the concept of protection zones around sources of supply (wells, springs and boreholes) based on either distance or time of travel.

2.9.2 Local Perspective

The first phase of groundwater protection zone delineation has now been completed for 86 North West Water Limited public supply sources within the Region. The timetable for completion of zoning around the other public supply, industrial and other licence sources in the North West has yet to be determined.

There are no groundwater sources used for public water supply with the Irk Catchment.

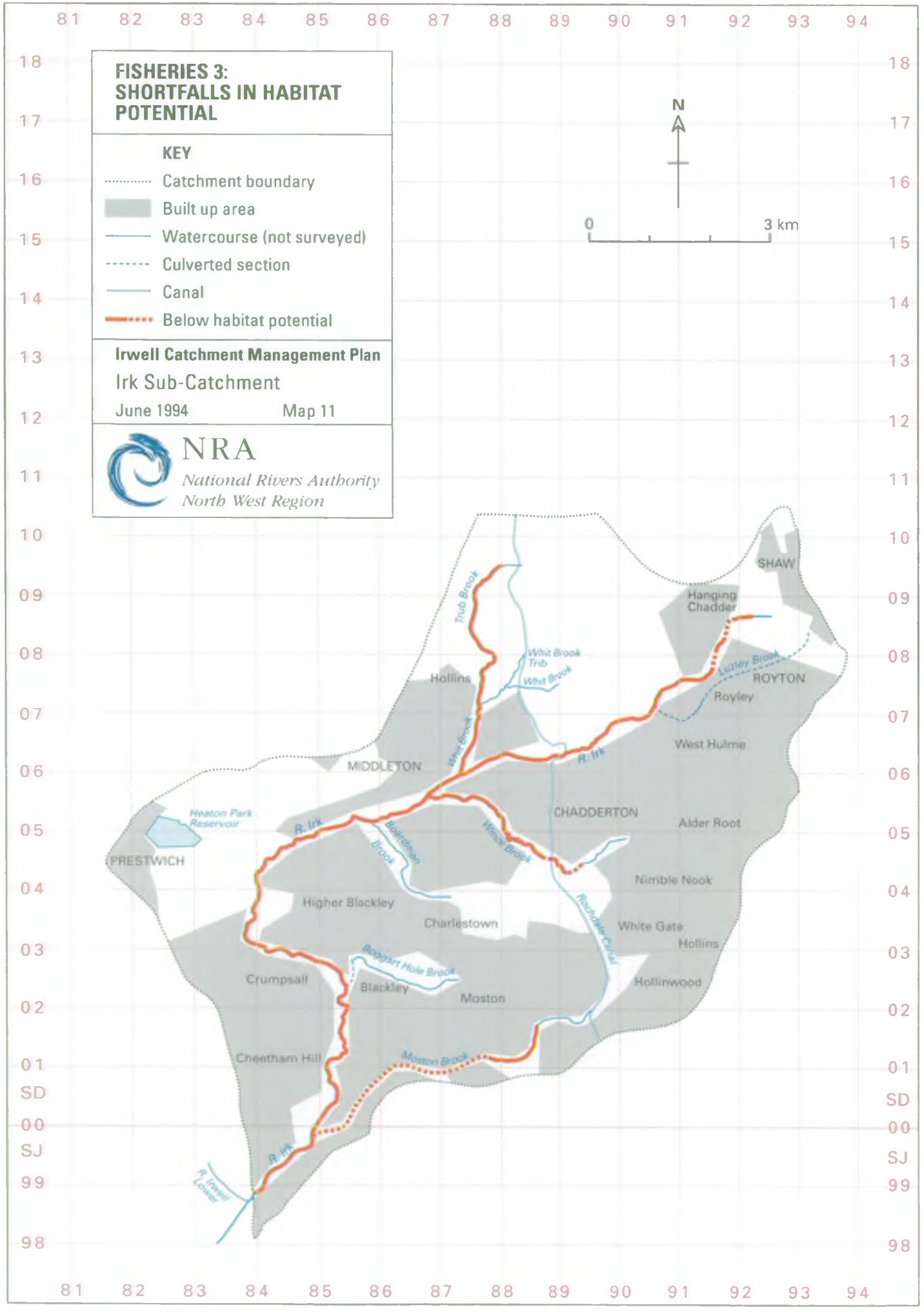
Conversely, it should be borne in mind that private groundwater sources, both licensed and unlicensed are used for potable purposes. These are usually in areas remote from the mains water distribution system, and associated with minor aquifers, for example, the Carboniferous Sandstones.

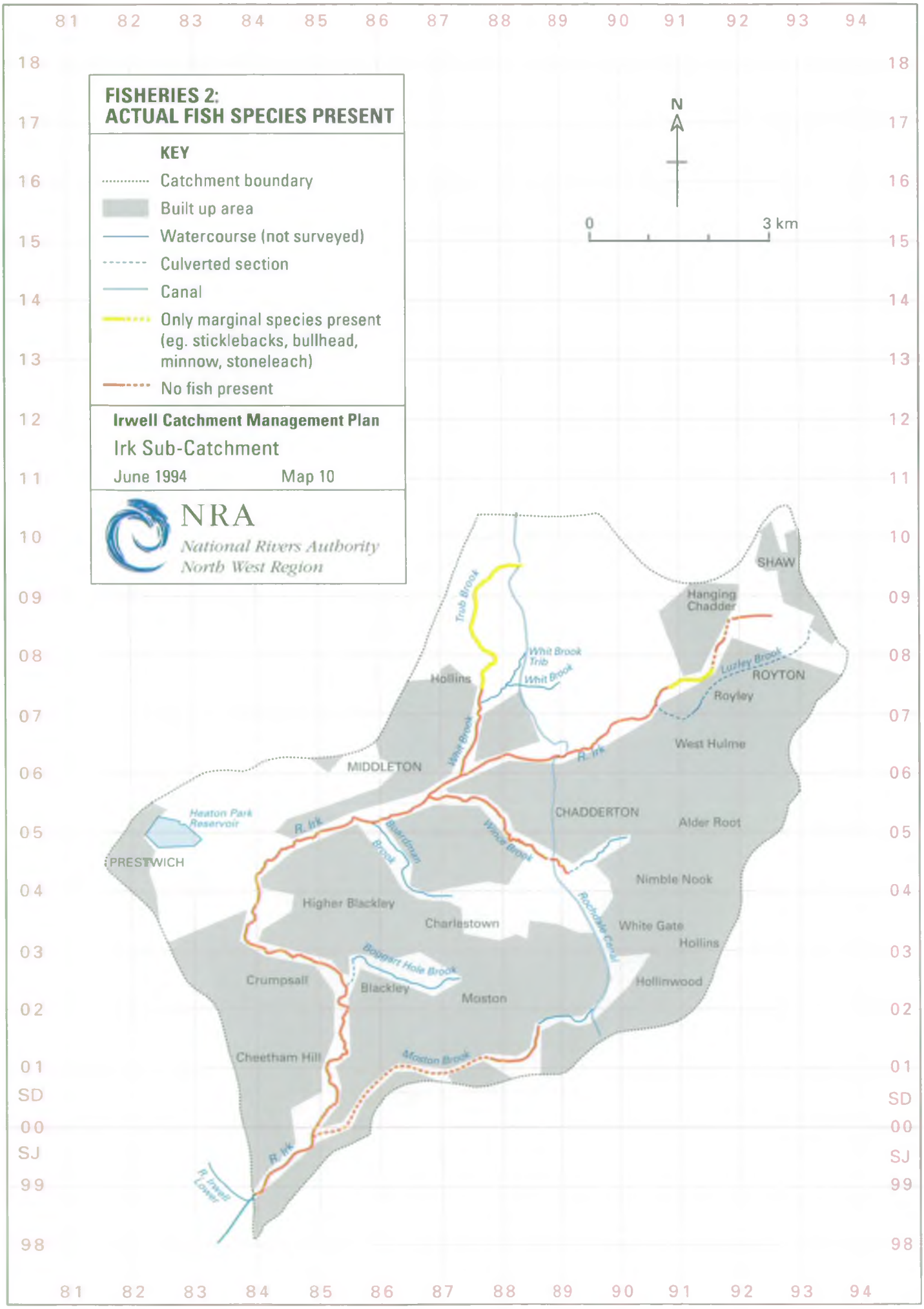
When available the source protection zone maps will be held in the NRA Regional Head Office at Richard Fairclough House, Warrington. The definition of zones is based on a wide range of variables and incorporates subjective judgement. In view of the need for frequent updating and amendment of these zones their general issue is not considered to be appropriate. Groundwater vulnerability maps intended to provide a simplified interpretation of the vulnerability and source protection across the catchment area and which take account of known hydrogeological conditions and variations will be produced in due course. The National Policy document contains a series of Policy Statements setting out the NRA's approach to dealing with various types of development/land use activity, depending on the groundwater vulnerability.

These activities include:

Groundwater abstraction
Waste disposal to land
Disposal of slurries and sludge to land
Physical disturbance of aquifers
Contaminated land
Diffuse pollution

The underlying philosophy is, "Prevention is Better Than Cure".


FISHERIES 3:
SHORTFALLS IN HABITAT POTENTIAL
KEY
Catchment boundary
Built up area
Watercourse (not surveyed)
Culverted section
Canal
Below habitat potential
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 11
NRA
National Rivers Authority
North West Region
N
0
3 km
81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01
SD
00
SJ
99
98
SHAW
Hanging Chadder
ROYTON
Royley
Lizzy Brook
Hollins
Whit Brook Trib
Whit Brook
Trub Brook
West Hulme
MIDDLETON
R. Irk
CHADDERTON
Alder Root
Heaton Park Reservoir
PRESTWICH
Boarstone Brook
White Brook
Nimble Nook
Higher Blackley
Charlestown
Rochdale Canal
White Gate
Hollins
Boggart Hole Brook
Crumpsall
Blackley
Moston
Hollinwood
Cheetham Hill
Moston Brook
R. Irwell
Lower


FISHERIES 2:
ACTUAL FISH SPECIES PRESENT
KEY
Catchment boundary
Built up area
Watercourse (not surveyed)
Culverted section
Canal
Only marginal species present (eg. sticklebacks, bullhead, minnow, stoneleach)
No fish present
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 10
NRA
National Rivers Authority
North West Region
N
0
3 km
81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01
SD
00
SJ
99 98
SHAW
Hanging Chadder
ROYTON
Royley
West Hulme
MIDDLETON
Hollins
CHADDERTON
Alder Root
PRESTWICH
Heaton Park Reservoir
Higher Blackley
Charlestown
Nimble Nook
White Gate
Hollins
Hollinwood
Crumpsall
Blackley
Moston
Cheetham Hill
Trib Brook
White Brook Trib
White Brook
Luzley Brook
R. Irk
Bluebottom Brook
Boggart Hole Brook
Moston Brook
Rochdale Canal
R. Irwell Lower

FISHERIES 1: RIVER HABITAT POTENTIAL

KEY

- Catchment boundary
- Built up area
- Watercourse (not surveyed)
- Culverted section
- Canal

Habitat zone (Species most suited to the habitat present)

- Trout (Trout, minnow, bullhead, stoneloach)
- Minnow (Trout, minnow, bullhead, stoneloach, chub, dace, gudgeon)
- Chub (Chub, dace, gudgeon, roach, perch, pike, eel)

Irwell Catchment Management Plan

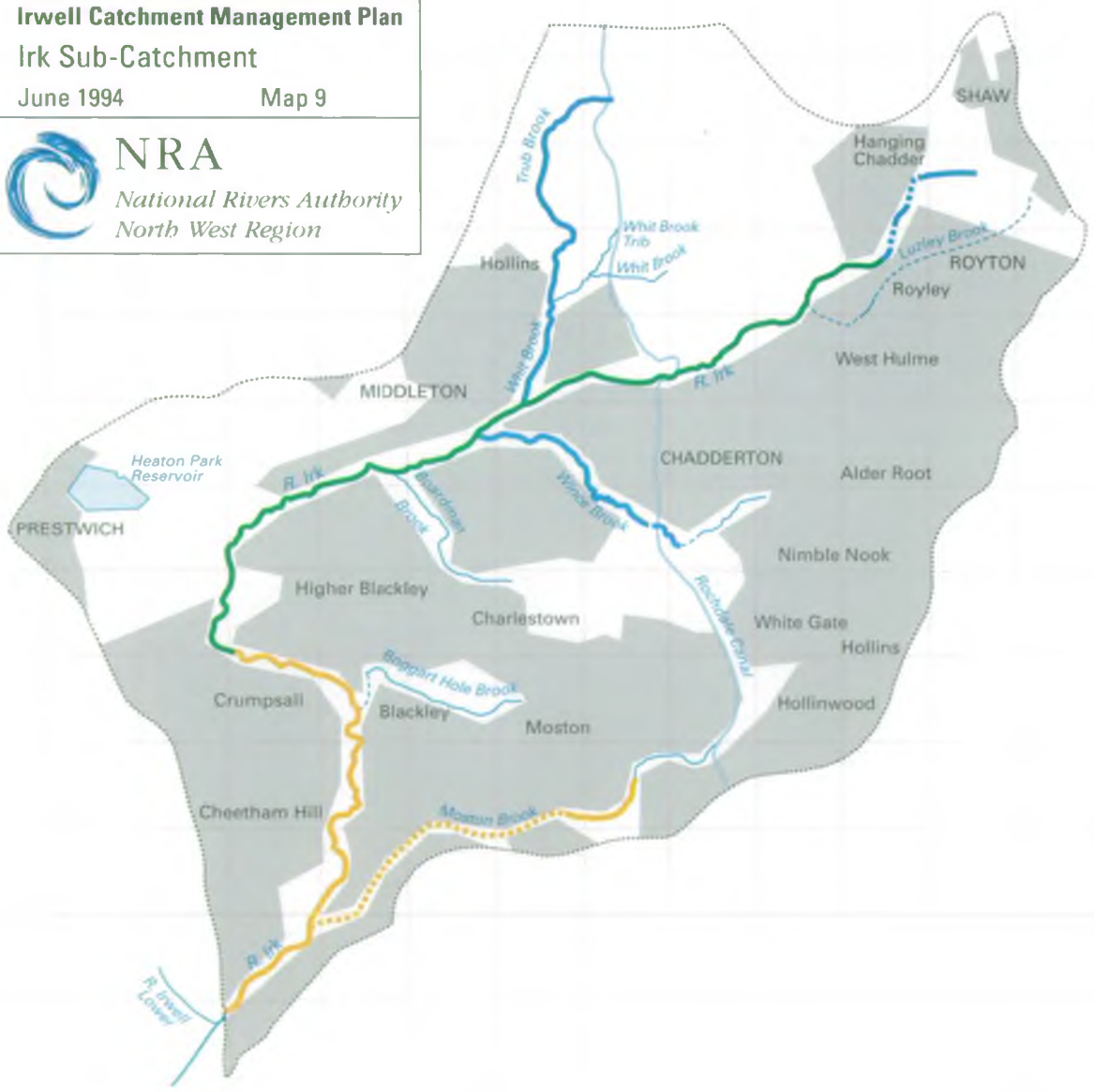
Irk Sub-Catchment

June 1994 Map 9

NRA
National Rivers Authority
North West Region

N

0 3 km



2.10 FISHERIES (MAPS 9, 10 & 11)

2.10.1 General

The use covers Game Fisheries, that is, the maintenance of breeding populations of salmonid fish species, namely brown trout in this catchment, and Coarse Fisheries, that is, the maintenance of breeding populations of coarse fish species.

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

2.10.2 Local Perspective

The NRA undertake fish population surveys on all rivers within a three year rolling programme. The results of these surveys can be summarised by the use of three coloured maps. The first map (Map 9) indicates the habitat potential or 'expected species' according to Huet's classification of rivers (1952)*. This is compared to a second colour map (Map 10) indicating the actual species present, (from the results of the survey), which enables the third map (Map 11), showing the shortfalls in habitat potential, as far as species composition is concerned, to be drawn. The data collected on the fish populations can be used to help classify and establish objectives for the river.

The River Irk Catchment should, by its physical nature, be a salmonid fishery in its upper reaches and a mixed fishery in its lower reaches. However, due to intermittent polluting discharges from the local sewerage systems and more general contaminated run-off from the urban areas, the system fails to support a resident fish population in all but isolated lengths of river.

* Huet, M. (1952), Biologie, Profils en Long et en Travers Des Eaux Courantes Bulletin Francais De Pisciculture 175,41-53.

2.10.3 Environmental Objectives

The overall objective is to develop and sustain a natural fish population appropriate to the catchment.

2.10.4 Environmental Requirements

Water Quality:

- River stretches suitable for brown trout are to be maintained within the limits for pollutants as specified in the E.C. Fisheries Directive (78/659/EC) for salmonid fish or by future SWQO's whichever is appropriate.

- The remaining river stretches downstream to the demarcation points to be maintained within the limits for pollutants as specified in the same EC Directive but for coarse fish species, or by future SWQO's whichever is appropriate.

Water Quantity:

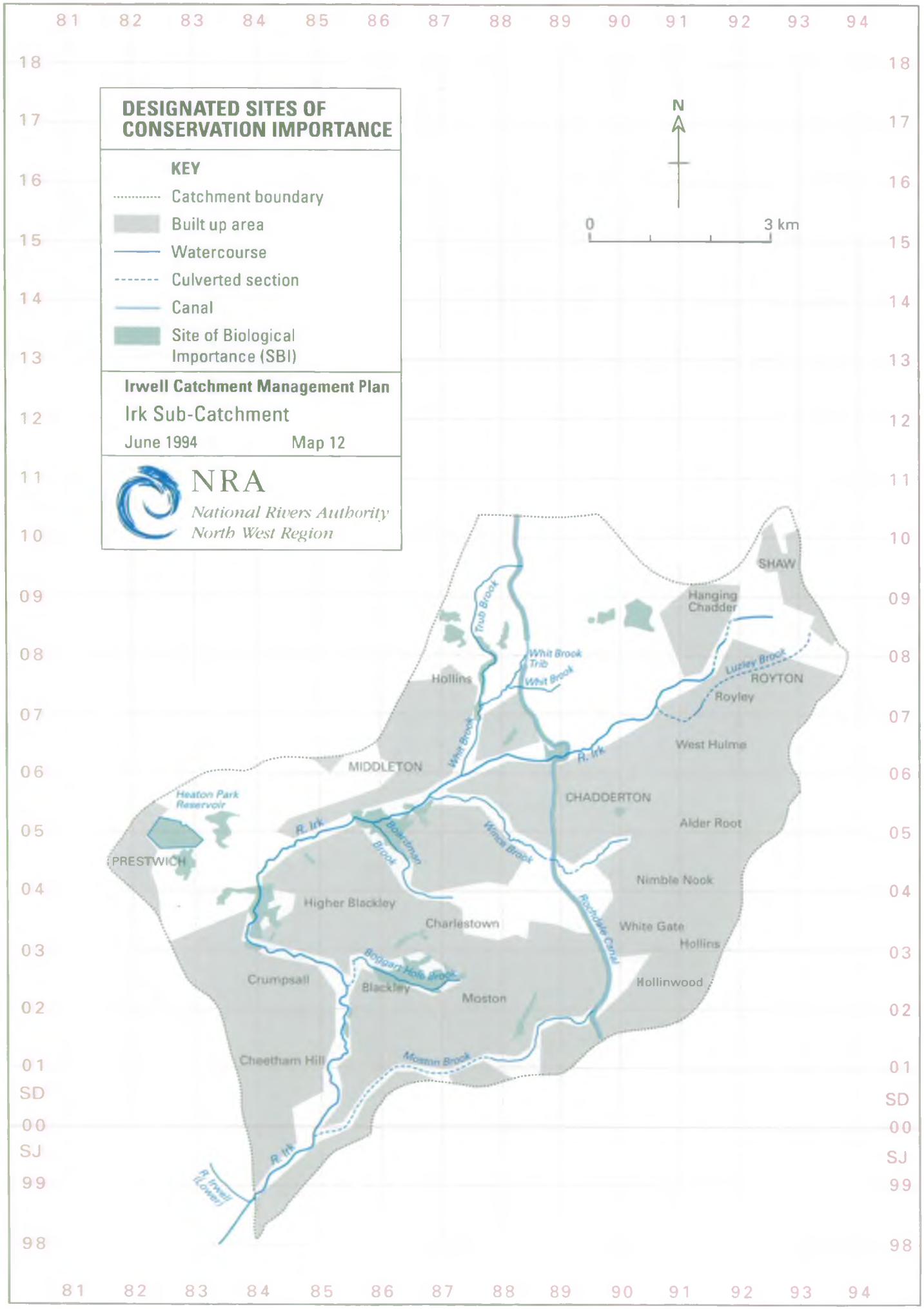
- A variable flow regime where the monthly average reflects the natural flow conditions in the river. The natural mean monthly flow not to decline below the historic monthly Q90 except during drought conditions.

Physical Features:

- A diversity of natural river features to ensure a variety of habitat to maximise the production of fish populations including riffle/pool sequences and weed beds for feeding, spawning etc.

- The presence of bankside vegetation to provide adequate shade and cover.

- To ensure that river maintenance operations have a minimal deleterious impact on fish populations and enhance river habitat diversity where practical.


81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 SD 00 SJ 99 98
DESIGNATED SITES OF CONSERVATION IMPORTANCE
KEY
Catchment boundary
Built up area
Watercourse
Culverted section
Canal
Site of Biological Importance (SBI)
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 12
NRA
National Rivers Authority
North West Region
N
0
3 km
SHAW
Hanging Chadder
Tnub Brook
White Brook Trib
White Brook
Hollins
Lucley Brook
ROYTON
Royley
West Hulme
R. Irk
MIDDLETON
CHADDERTON
Alder Root
Heaton Park Reservoir
PRESTWICH
Boarsman Brook
Wince Brook
Nimble Nook
Higher Blackley
Charlestown
White Gate
Hollins
Rochdale Canal
Crumpsall
Blackley
Boggart Hole Brook
Moston
Hollinwood
Cheetham Hill
Moston Brook
R. Irwell (Lower)

2.11 CONSERVATION (MAP 12)

2.11.1 General

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

2.11.2 Local Perspective

Most of the Irk Catchment is heavily urbanised. The river corridors often provide the only substantial areas of open space within the catchment. The local conservation value of the river corridors is indicated by the fact that many of the designated sites of conservation interest are concentrated within them.

For much of its length, the River Irk has been straightened. It is largely constrained within walls, sheet steel piling or other forms of revetment which restricts habitat diversity. The river is seriously fragmented by culverted sections, notably through Middleton and Royton. Access to the river is often difficult.

However, it does have a stony substrate with riffle/pool sections and variety in flow even within some of the 'channelised' sections. Scattered bankside trees and shrubs, wooded stretches, small pockets of unimproved grassland, adjacent wetland and lodges, and scrubby areas provide additional habitat diversity and conservation interest within the river corridor.

Close to its source, the River Irk follows a more natural, meandering route and is a small stream within a narrow valley, with rush-dominated margins and adjacent low-lying wet areas. Adjacent land is predominantly grazed pasture.

Of its tributaries, Trub Brook is of most conservation interest, as are stretches of Boardman Brook, Boggart Hole Brook, Whit Brook and its tributary, and Wince Brook mainly upstream of Oldham ETW. Here they have not been degraded by development pressures or 'channelised'.

Trub Brook and its corridor are of local conservation interest, with much of it falling within SBI's. The brook meanders quite naturally within its small, upland valley, with diversity in flow over a stony substrate. Much of the corridor is wooded clough, though it is more open through Manchester Golf Course. Low-lying wet shelves, sand/silt margins and gravel shoals, and eroding cliff sections are common throughout.

Much of Boggart Hole Brook in Blackley runs through a largely wooded SBI. The brook itself has some diversity in flow over a sandy bed, with a meandering route, though sections have been constrained. Urban debris is a problem in some areas. There are a variety of habitats within the corridor including wooded slopes, parkland and rough neutral grassland.

Much of Boardman Brook is of local conservation interest where it has not been constrained by development or 'channelisation'. The downstream sections have been designated as part of a Grade A SBI. Habitats here include wooded slopes, marshy areas and acidic grassland as well as the small meandering watercourse with diversity in flow and channel characteristics. Unfortunately, upstream sections are to be lost due to the M66 proposals.

Wince Brook is largely constrained within walled channels and flows through heavily urbanised areas, with culverted sections through Middleton. Urban debris is a problem particularly in the Middleton area and there are dense growths of the pollution-tolerant fennel-leafed pond weed (which is also common within the River Irk). There are scattered bankside trees and shrubs which provide some habitat diversity.

Of more conservation interest is the Boarshaw Clough SBI area where the channel meanders through a small valley and there is variety in flow over a predominantly stony substrate. Upstream of Oldham STW the brook is both visually and environmentally attractive. The narrow channel meanders through a small valley, with riffle/pool sections over a gravel bed. There are narrow vegetated margins, with the banks supporting a number of overhanging trees/shrubs (mainly hawthorn and sycamore) and adjacent land is pasture.

Apart from the downstream sections of Whit Brook and a small section running through an industrial estate, both Whit Brook and its tributary are of local conservation interest. Both are small watercourses flowing through narrow valleys. There is diversity in flow, over a stony substrate with rush-dominated margins and some actively eroding cliff sections. Bankside trees and shrubs are locally common and adjacent land is predominantly heavily-grazed pasture.

Much of Moston Brook has been culverted or is in walled channel through heavily urbanised areas.

There is much scope for enhancement or restoration of the river corridors. Redevelopment of a site containing a culvert presents a good opportunity to open up the watercourse to create an attractive water feature. This would remove a barrier to fish and wildlife and restore continuity in the riverine environment.

Opening up culverts as part of river restoration schemes may be possible in certain circumstances. The most suitable sites are those which run through uncontaminated green space with scope for the reintroduction of meanders. Other sites may be too deep and involve removal of too much spoil.

The Catchment has a number of old reservoirs/lodges, many of which support a range of aquatic plants and are often designated as SBI's.

The Rochdale Canal SBI also bisects the catchment. This is a very important aquatic ecosystem. Notable plant species include slender water pond weed and floating water plantain (both of which are protected under the Wildlife and Countryside Act, 1981) and it has the best example of water violet in Greater Manchester.

2.11.3 Aquatic Invertebrates

In general, invertebrate diversity on this catchment is poorer than for the other Irwell sub-catchments, particularly in the lower half downstream of Middleton, with large numbers of pollution tolerant organisms present including Asellidae hog lice, Chironomidae midge larvae, and Tubificidae worms.

2.11.4 Environmental Objectives

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

This is to be achieved by:-

- retention of existing features of conservation interest
- actively promoting the enhancement of the river corridor, wherever possible/desirable
- seeking effective mitigation for any loss of conservation features
- safeguarding the special conservation interest for which sites have been designated.

2.11.5 Environmental Requirements

Water Quality:

- Water quality not to deteriorate to a level such that sites of local conservation value lose their general aquatic interest, for example, Trub Brook, Boggart Hole Brook and Boardmans Brook upstream of the STW.

- Water quality improvement at some sites would enhance an existing conservation value.

Water Quantity:

- A variable flow regime where the monthly average flow reflects the established or natural flow conditions in the river. The mean monthly flow not to decline below the established monthly Q90 except under drought conditions.

- Maintain the hydrological link between the river and its flood plain where appropriate. The water table to be maintained at a high level where possible but particularly where wetlands occur. Spate flows should be allowed to inundate certain wetlands.

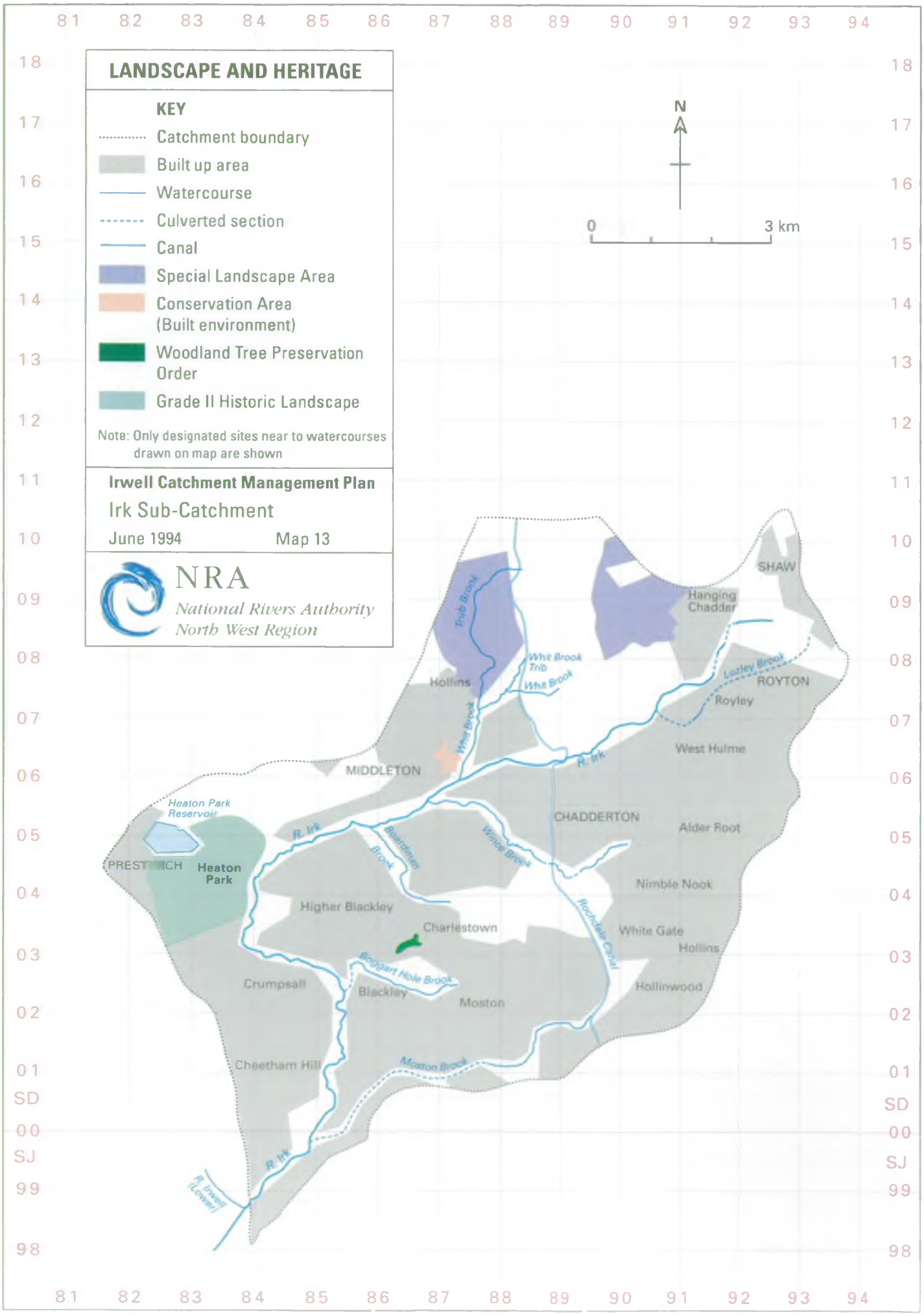
- Spate flows to naturally cleanse the river channel.

Physical Features:

- The maintenance and enhancement of the diversity of natural river features such as meanders, earth cliffs, areas of erosion/deposition, pool/riffle sequences and the presence of aquatic vegetation and marginal (water's edge) vegetation.

- The maintenance and enhancement of a diversity of river corridor habitats including marsh, ponds, fringe/overhanging vegetation, bankside trees and hedges, species-rich bank vegetation, grassland and woodland. In addition, the conservation of the features which give rise or contribute towards the specific features of the designated conservation areas.

- The channel cross section to be appropriate for the river flow regime.


LANDSCAPE AND HERITAGE
KEY
Catchment boundary
Built up area
Watercourse
Culverted section
Canal
Special Landscape Area
Conservation Area (Built environment)
Woodland Tree Preservation Order
Grade II Historic Landscape
Note: Only designated sites near to watercourses drawn on map are shown
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 13
NRA
National Rivers Authority
North West Region
N
0
3 km
81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01
SD
00
SJ
99
98
SHAW
Hanging Chadder
Trib Brook
White Brook Trib
White Brook
Hollins
Lostley Brook
ROYTON
Royley
West Hulme
R. Irk
MIDDLETON
Heaton Park Reservoir
CHADDERTON
Alder Root
Boarshaw Brook
White Brook
PRESTWICH
Heaton Park
Nimble Nook
Higher Blackley
Charlestown
White Gate
Hollins
Rochdale Canal
Boggart Hole Brook
Crumpsall
Blackley
Moston
Hollinwood
Cheetham Hill
Moston Brook
R. Irwell (Lower)

2.12 LANDSCAPE AND HERITAGE (MAP 13)

2.12.1 General

The NRA has a statutory duty to promote the conservation and enhancement of natural beauty for inland and coastal waters, and for land associated with such waters

There is a statutory duty to have regard to the desirability for protecting and conserving buildings, sites and objects of archaeological, architectural or historic interest

These duties cover nationally designated sites, for example, Areas of Outstanding Natural Beauty, Scheduled Ancient Monuments as well as locally valuable sites.

2.12.2 Local Perspective

The Irk Catchment is predominately built-up, as highlighted by approximately 68% of "main river" length running through developed areas. In addition the river valley is generally constrained by development, with Boggart Hole Clough and Heaton Park being the most important public open space areas.

The Irk river valley is separately defined by the draft Local Plans along with specific policies generally for its protection and enhancement.

The Rochdale draft UDP proposes to incorporate all urban stretches of the Irk river valley within a network of Greenspace Corridors, within which woodland planting will be encouraged.

The Manchester draft UDP includes for the provision of a linear pedestrian/cycle route alongside the river where possible.

In the catchment area, approximately 10% of the "main river" length is bounded by woodland on one or both banks. The area of Boggart Hole Clough is the most wooded section.

Trub Brook is the only stretch of "main river" to be designated a Special Landscape Area within the Irk Catchment.

The archaeological interest of the Greater Manchester area is complex with many potential sites still undiscovered.

There are no Scheduled Ancient Monument sites within the Irk Catchment.

Heaton Park, close to Prestwich is listed on the Historic Parks and Gardens register (Grade II). Heaton Hall is a listed Grade 1 structure. The Manchester draft UDP contains proposals to increase the range of recreation activities in the park in line with its special character.

The NRA hope to support riverside regeneration initiatives including renovation of significant or historical buildings especially if they include the provision of riverside walkways and use of local or natural materials.

2.12.3 Environmental Objectives

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

This is to be achieved by:

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

2.12.4 Environmental Requirements

Water Quality:

- To be aesthetically acceptable, that is, water to be free from surface films, extraneous floating material, discolouration and unpleasant odours.
- Not to deteriorate to a level such that sensitive heritage sites lose their interest.

Water Quantity:

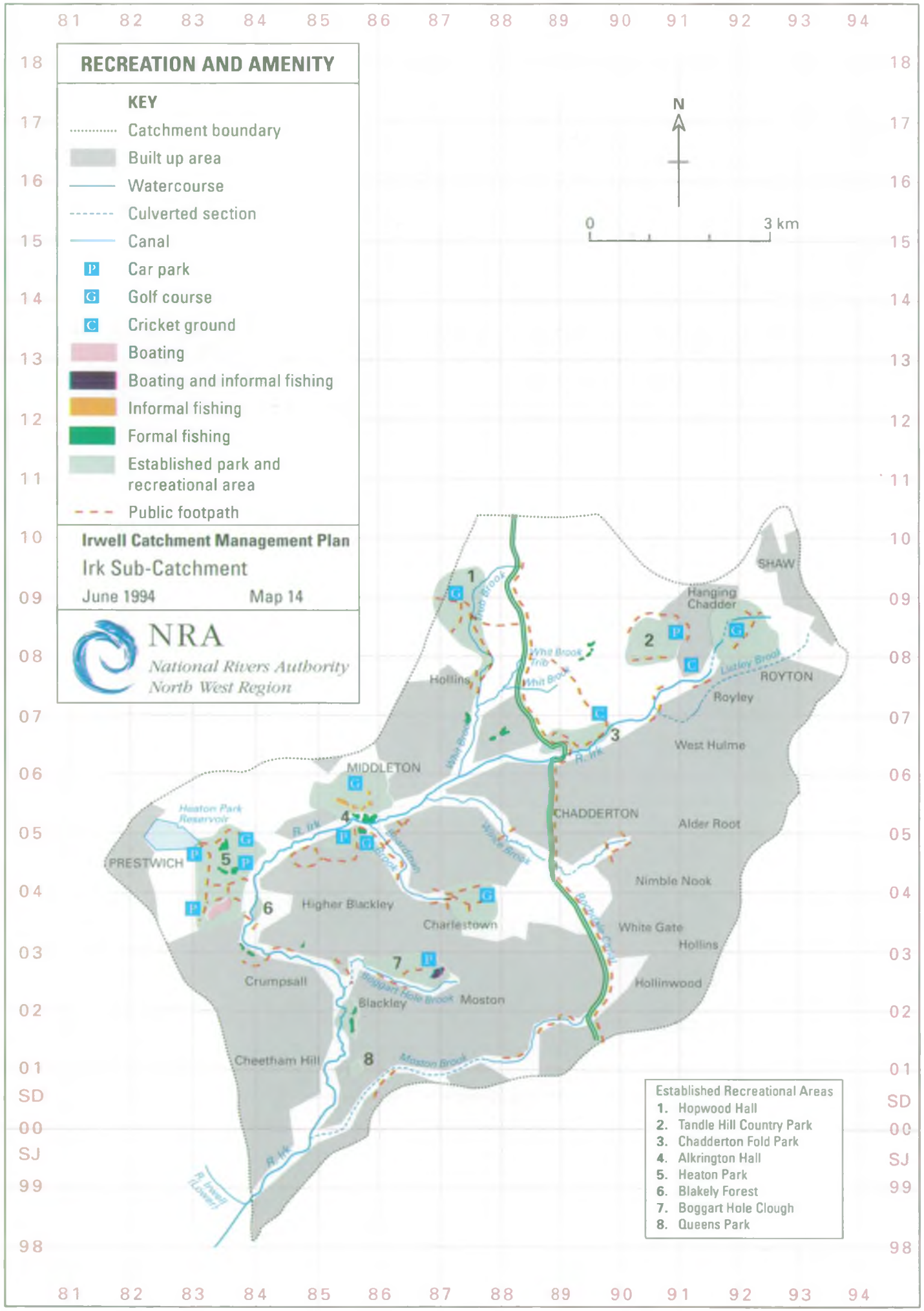
- A flow regime which reflects the natural or established flow conditions in the river.

- The water table to be maintained so as not to damage sensitive heritage sites.

Physical Features:

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

- Historic features and landscape types to be conserved, with restoration and interpretation as appropriate.


RECREATION AND AMENITY
KEY
Catchment boundary
Built up area
Watercourse
Culverted section
Canal
Car park
Golf course
Cricket ground
Boating
Boating and informal fishing
Informal fishing
Formal fishing
Established park and recreational area
Public footpath
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 14
NRA
National Rivers Authority
North West Region
N
0
3 km
81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 SD 00 SJ 99 98
SHAW
Hanging Chadder
ROYTON
Royley
Hollins
MIDDLETON
West Hulme
CHADDERTON
Alder Root
Heaton Park Reservoir
PRESTWICH
Higher Blackley
Charlestown
Nimble Nook
White Gate
Hollins
Crumpsall
Blackley
Moston
Hollinwood
Cheetham Hill
R. Irk
Established Recreational Areas
1. Hopwood Hall
2. Tandle Hill Country Park
3. Chadderton Fold Park
4. Alkrington Hall
5. Heaton Park
6. Blakely Forest
7. Boggart Hole Clough
8. Queens Park

2.13 RECREATION AND AMENITY (MAP 14)

2.13.1 General

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

2.13.2 Local Perspective

There are several well established recreational areas available to the public. The catchment is well catered for by numerous golf courses, and occasional small sports grounds, bowling greens and cricket grounds which are scattered adjacent to the watercourses. Access along the corridors is available by means of short riverside walks.

The main water related recreational activity within the catchment is boating which is available at two of the parkland sites. The parks are managed by a warden service who improve and enhance countryside recreation, wildlife conservation and valuable landscape features.

Other activities such as walking and golfing also bring the public into close proximity of the water environment.

Still waters and canal lengths throughout the catchment are used for angling, pond dipping and general educational uses.

2.13.3 Environmental Objectives

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

2.13.4 Environmental Requirements

Water Quality:

- Minimum requirement being the protection of the amenity value of the watercourse.

- Water to be free from surface films, unnatural colour, stable foam, extraneous floating material and unpleasant odour.

Water Quantity:

- Basic flow regime including the operation of transfer and augmentation schemes, to minimise detriment to recreation and amenity.

Physical Features:

- Maintenance of existing footpaths.
- Maintenance of existing access points.
- Enhancement of available facilities.
- Promotion of increase in available facilities.

2.14 ANGLING

2.14.1 General

This use of the river specifically relates to the use of the catchment by pleasure anglers.

2.14.2 Local Perspective

Currently no angling takes place on the River Irk or its tributaries. However, there are numerous small still waters and lengths of canal, within the catchment area, that provide pleasure anglers with good quality coarse fishing.

2.14.3 Objectives

To provide suitable and safe conditions for successful angling within the catchment.

2.14.4 Environmental Requirements

Water Quality:

- To be of sufficient quality to comply with the basic amenity use of the water body.
- To be aesthetically acceptable in order to enhance angling, that is, water to be free from surface films, extraneous floating material, stable foam, discolouration and unpleasant odours.
- To comply with appropriate water quality objectives for fisheries.

Water Quantity:

- A variable flow regime where the monthly average reflects the natural flow conditions in the river. The natural mean monthly flow not to decline below the historic monthly Q90 except during drought conditions.

Physical Features:

- The maintenance of sufficient access points for angling.
- The maintenance of a mixture of open water as well as instream and bankside vegetation.

FLOOD DEFENCE: OBJECTIVES

KEY

- Catchment boundary
- Built up area
- Main river
- Ordinary watercourse
- Culverted section
- Canal
- Construct access ramps for river maintenance
- Maintenance
- Improvement Works

Irwell Catchment Management Plan

Irk Sub-Catchment

June 1994 Map 16

NRA
National Rivers Authority
North West Region

N

0 3 km

FLOOD DEFENCE: RIVER CORRIDOR LAND USE PLAN

KEY

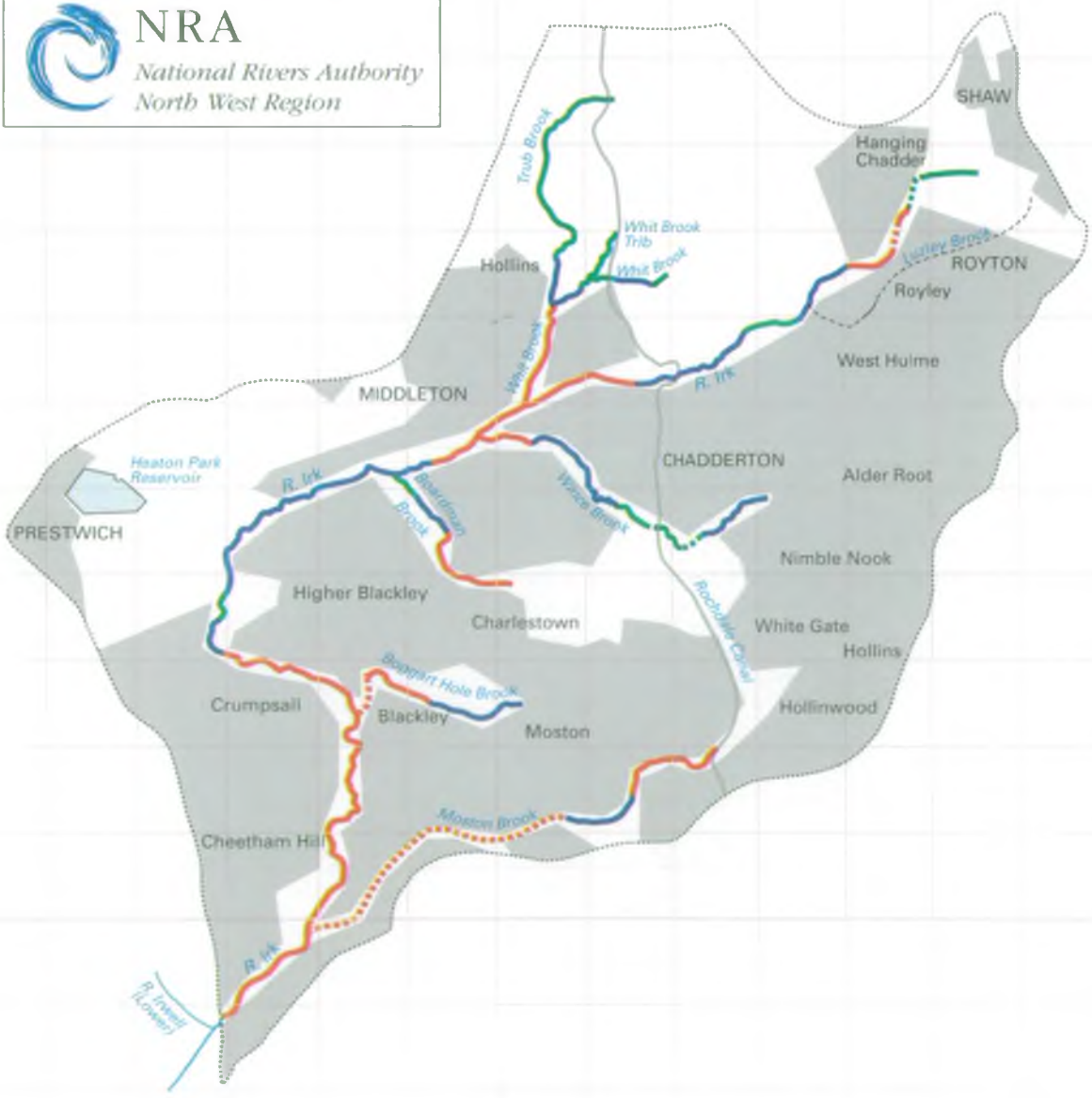
- Catchment boundary
- Built up area
- Main river
- Ordinary watercourse
- Culverted section
- Canal
- Urban
- Semi - urban
- Rural

Irwell Catchment Management Plan

Irk Sub-Catchment

June 1994 Map 15

NRA
National Rivers Authority
North West Region



3. CATCHMENT OBJECTIVES

3.1 FLOOD DEFENCE OBJECTIVES (MAPS 15 & 16)

3.1.1 General

The need for Flood Defence works is assessed using a number of criteria, which results in a benefit/cost figure. If the scheme cost is greater than the benefits accrued (which include flood damage, transport disruption, emotional stress, etc.) then it is likely that no scheme can proceed.

Target standards for flood protection when carrying out maintenance or improvement works, can generally be defined in the following manner (Map 15):-

RIVER CORRIDOR LAND USE CLASSIFICATION

Classification	Definition	Target Standard of Protection (Years)
Urban	Medium to High density urban development containing both residential and non-residential property.	25 - 100
Semi-urban	Low density urban developments or rural communities, mixed with agricultural land.	10 - 25
Rural	Predominantly agricultural land, ranging from grass land to arable farming.	1 - 10

The Flood Defence objectives identified on the map are areas where it is considered likely that future works may be carried out (Map 16).

3.1.2 Objectives

In addition to the requirements identified on the map the following general requirements are also considered objectives for the catchment:

- Ensure provision of suitable access for maintenance of the river channel and flood defences.
- Maintenance regime which encourages ecological diversity, whilst maintaining flood defence levels of service.
- Co-operation with others responsible to ensure river corridors are free from rubbish and other imported debris.
- Operation of flood defence structures to ensure protection of all identified uses.

3.2 WATER QUANTITY OBJECTIVES

3.2.1 General

This section considers the requirements for both meeting existing and future abstraction water demand in the catchment and for minimum residual flows (MRF's) and minimum control levels (MCL's) to protect in-river needs.

3.2.2 Objectives

Water Abstraction

The NRA has yet to establish formal policy with regard to supply objectives but the following targets will be considered, and in many cases are already being actively pursued:-

a) To meet all reasonable demands to the Authority's stated levels of service within quality criteria described in the Authority's Water Quality Objectives.

The use-related levels of service are as follows:-

Public Water Supply:

- risk of hosepipe ban restrictions not greater than 1 year in 10.
- need for voluntary savings of water not greater than 1 year in 20.
- risk of standpipes not greater than 1 year in 100.

Spray Irrigation:

- risk of restriction not greater than 1 year in 12.

b) To set MRF's and MCL's to protect the in-river needs of environmental waters.

c) To ensure the best utilisation of water resources and the efficient use of water within the catchment.

Surface Waters:

In sub-catchments where there is significant water abstraction, minimum flow and level controls are necessary to ensure the resource is not over-committed in dry or drought years at the expense of other water users. Provisionally a general MRF equivalent to the 90 percentile flow (that flow which is exceeded 90% of the time) may be used as a target flow at points on the river. In retained water level reaches MCL's are also set to ensure minimum depths of water.

In some sub-catchments MRF's at specific locations may be required to provide dilution for effluent discharges.

Local Hydrometric Objectives:

The hydrometric information gathered in the Irk Catchment is principally for water quality management for the industrialised catchment.

Short term these are local needs to provide river levels and rainfall information for specific projects - usually for setting water quality standards.

Groundwaters:

In dry/drought summer conditions, spring flow discharges from groundwater aquifers to sustain surface water flows. Areas which require particular protection from any long term groundwater level decline need to be specified. General protection from long term level decline is required over the whole area to protect existing uses and users of groundwater.

WATER QUALITY: PRESENT CLASSIFICATION OBJECTIVES

KEY

- Catchment boundary
- Built up area
- 2
- Reach boundaries
- Unclassified watercourse
- Culverted section
- Watercourse
- Canal

Irwell Catchment Management Plan

Irk Sub-Catchment

June 1994 Map 17

NRA
National Rivers Authority
North West Region

N

0 3 km

3.3 OBJECTIVES : WATER QUALITY (MAP 17)

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

3.3.1 Water Quality Classification

a) Present Water Quality Classification Objectives - National Water Council (NWC) Classification

The NWC system of water quality classification was established in the 1970's. Inland watercourses are classed as 1A, 1B, 2, 3 or 4 in descending order of quality.

Class 1A and 1B watercourses could support a game fishery other factors being favourable whereas Class 4 waters are so grossly polluted as to be likely to cause nuisance.

Watercourses are assigned to Class on the basis of the chemical parameters, dissolved oxygen, Biochemical Oxygen Demand (BOD) and ammonia with due regard to the results of monitoring of benthic invertebrate fauna.

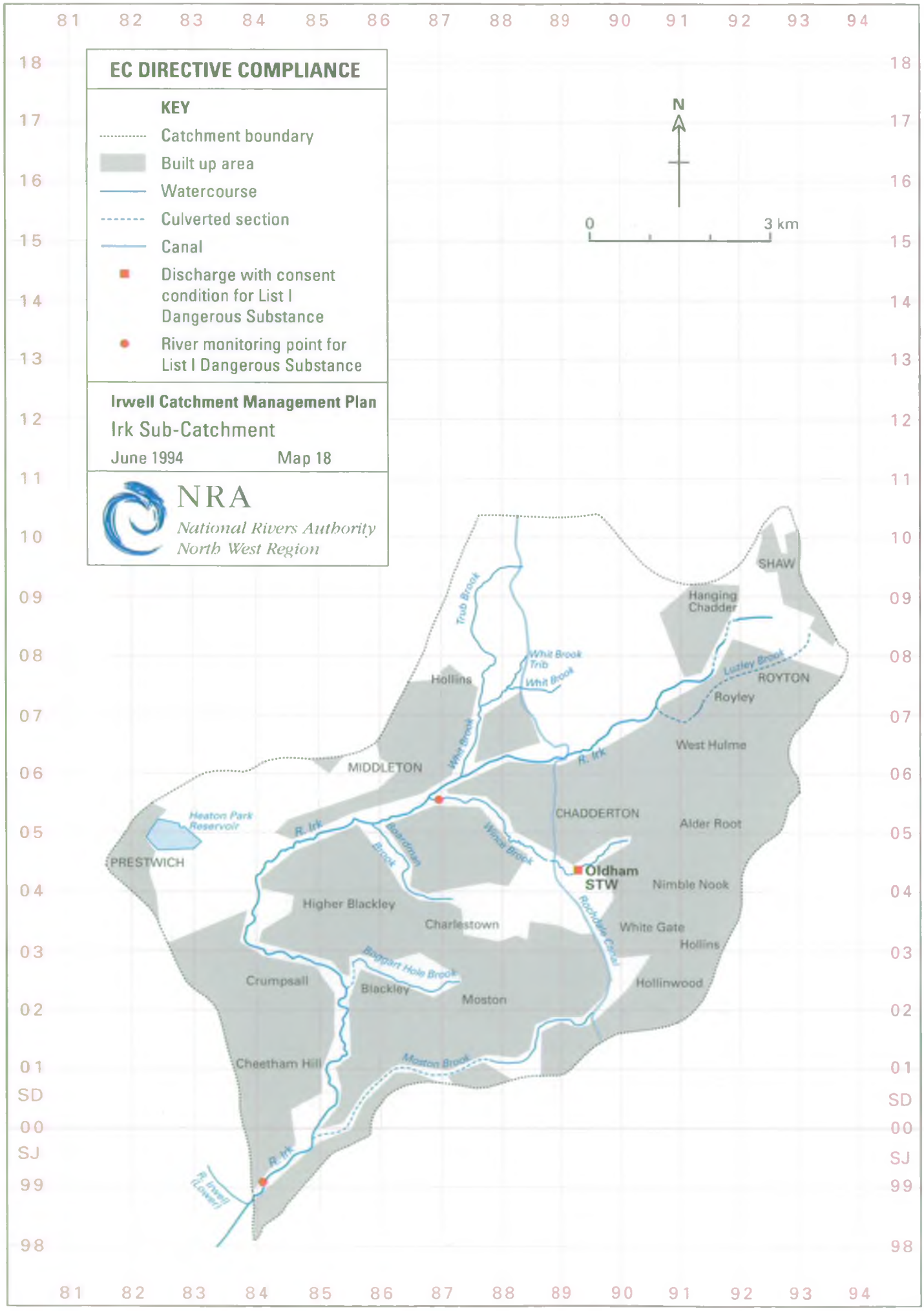
In 1979 stretches of watercourse throughout England and Wales were defined and targets, Long Term Objectives (LTOs) or River Quality Objectives (RQOs), in terms of the NWC Classification system assigned to them.

The minimum target assigned was achievement of Class 2 quality which should support a coarse fishery. The target achievement date was 2010 with an emphasis on eliminating Class 4 watercourses by 2000. Incorporated within this is the policy of no deterioration in the quality of controlled surface waters. Some amendments have been made to the stretch definitions since 1979 and these are included for the purposes of this report.

There are 10 defined classified reaches within the Irk Catchment and they are shown together with their NWC objectives on Map 17.

b) Future Water Quality Classification Objectives - Statutory Water Quality Objectives (SWQOs)

Proposals have been made in recent years for a system of legally binding targets based on the uses to which a watercourse could legitimately be put. These will supersede the NWC Long Term Objective targets. Statutory Water Quality Objectives involve classification systems of water quality required for different types of use and for use in assessing compliance for that use.


EC DIRECTIVE COMPLIANCE
KEY
Catchment boundary
Built up area
Watercourse
Culverted section
Canal
Discharge with consent condition for List I Dangerous Substance
River monitoring point for List I Dangerous Substance
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 18
NRA
National Rivers Authority
North West Region
N
0
3 km
81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 SD 00 SJ 99 98
SHAW
Hanging Chadder
ROYTON
Royley
Luzley Brook
Hollins
Trub Brook
White Brook Trib
White Brook
West Hulme
MIDDLETON
R. Irk
CHADDERTON
Alder Root
Heaton Park Reservoir
PRESTWICH
Boardman Brook
Wince Brook
Oldham STW
Nimble Nook
Higher Blackley
Charlestown
White Gate
Hollins
Rochdale Canal
Hollinwood
Boggart Hole Brook
Crumpsall
Blackley
Moston
Cheetham Hill
Moston Brook
R. Irwell (Lower)

To date only the River Ecosystem classification system has been fully developed. The regulations defining the system received legal status on the 10th May 1994. Objectives under this classification system will be set for stretches of watercourse in the near future. It is possible to relate the NWC Long Term Objective targets to the River Ecosystem classification system. It is envisaged that River Ecosystem objectives will be applied to stretches in a manner that where the water companies are affected no additional expenditure by them will be required over that which would have been required with the previously pertaining NWC Long Term Objective. Otherwise a direct translation will largely apply.

Classification systems for other uses are likely to follow.

3.3.2 EC Directives (MAP 18)

Two Directives issued by the EC have implications for water quality in the Irk Catchment.

a) Directive on Dangerous Substances in Water

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

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

The locations of river monitoring points and of discharges with consent conditions for Dangerous Substances in the Irk Catchment are shown on Map 18.

b) Directive on Urban Wastewater Treatment

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

The interpretation in the UK will mean that all significant inland STW will almost most certainly already comply with all the requirements relating to treatment.

However, the requirement that collecting systems (the sewerage network) shall be designed, constructed and maintained in accordance with best technical knowledge not entailing excessive costs specifically regarding the limitation of pollution of receiving waters due to storm (and emergency) overflows presents very significant objectives to be met. Over 120 overflows have been identified within the Irk Catchment with regard to this requirement.

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

3.3.3 Groundwater Protection Objectives

In December, 1992 the NRA issued its Groundwater Protection Policy. Groundwater is a vital natural resource and under particular threat from the effects of human activity. Once polluted, groundwater is often difficult and very expensive to recover. Therefore, preventing groundwater contamination is a major objective of the NRA. The Authority would like this policy to be viewed by all those whose activities may compromise groundwater quality, as a guide to assist and influence future planning strategy decisions. The document outlines the concept of vulnerability, that is the designation of areas of land where certain activities can have an appreciable affect on groundwater quality in an aquifer system and where pollution could quickly enter groundwater. It deals in particular with:-

- waste disposal land
- disposal of slurries and sludge to land
- physical disturbance of aquifers affecting quality and quantity
- contaminated land
- diffuse pollution and unacceptable activities in high risk areas

It is important to note that the definition of "controlled water" provided by the Water Resources Act, 1991 included groundwater. Therefore, statutory Quality Objectives for groundwaters will be developed by the NRA in the future.

3.4 PHYSICAL FEATURES OBJECTIVES

3.4.1 General

This section considers the general requirements for the physical features of the rivers and associated land of the catchment.

From the uses identified in Section 2, Physical Features Objectives have been defined as follows:

3.4.2 Objectives

Development Control

- Retain, recreate and enhance open green corridors along watercourses with a variety of features for people and wildlife. Effective river corridors should be continuous, and as wide as possible, to allow the free movement of wildlife and full enjoyment of their recreational potential.

- There should be no increase in flood risk as a result of development. No development in areas where the existing level of flood protection is considered below the target standard required for the type of development proposed.

- Ensure there are no new obstacles to the potential migration of fish.

Potable Water Supply, Agricultural and Industrial Abstraction

- Provide control structures and ensure efficient resource management. Promote winter storage facilities.

- Promote the use of soakaway/recharge drainage systems for proposed development.

Mineral Extraction and Landfill Sites

- All sites to be restored to an acceptable environmental standard and the creation of aquatic habitats promoted.

- Safeguard features of the water environment which are of conservation or landscape value.

- Safeguard the unique physical character and natural topography of the river valleys and flood plains.

- Maintain the integrity of the river channel adjacent to extraction sites.

Fisheries

- Endeavour to provide and maintain a diversity of natural river features to ensure variety of habitats to maximise the production of future fish populations.

- Maintain bankside vegetation to provide adequate shade and cover.

- Provision of fish passes around weirs and other obstructions to potential fish migration.

Conservation

- Promote the conservation and enhancement of healthy rivers with a diversity of natural geomorphological features, such as meanders, with areas of erosion and deposition, earth cliffs, undercut banks, pools, riffles, shoals, bars and islands.

- Protect and enhance the range of wildlife and semi-natural habitats found within the river corridors including flood plain habitats, old channels, marsh, ponds, marginal and overhanging vegetation, bankside trees and hedges, uncultivated buffer strips, species rich grassland and woodland.

- Promote less intensive farming in river corridors through initiatives such as countryside stewardship.

Landscape and Heritage

- Further, enhance and promote the natural beauty of the water environment.

- Safeguard those man-made features of the riverine environment that are of archaeological, historic, aesthetic or conservation value. For example weirs, stone walls, mill races and old industrial buildings.

Recreation and Amenity

- Promote the potential of open river corridors for informal recreation.

- Promote the creation and linking up of footpaths along and to watercourses.

Angling

- Endeavour to provide sufficient access and maintain mixture of open water together with instream and drainable habitats.

- Safeguard the variety of still waters in the catchment including the reservoirs, mill lodges and ponds which are also of ecological and historic interest.

FLOOD DEFENCE: EXISTING LEVELS OF PROTECTION

KEY

- Catchment boundary
- Built up area
- Main river
- Ordinary watercourse
- Culverted section
- Canal
- 1 - 10 Years
- 10 - 25 Years
- 25 - 100 Years

Irwell Catchment Management Plan

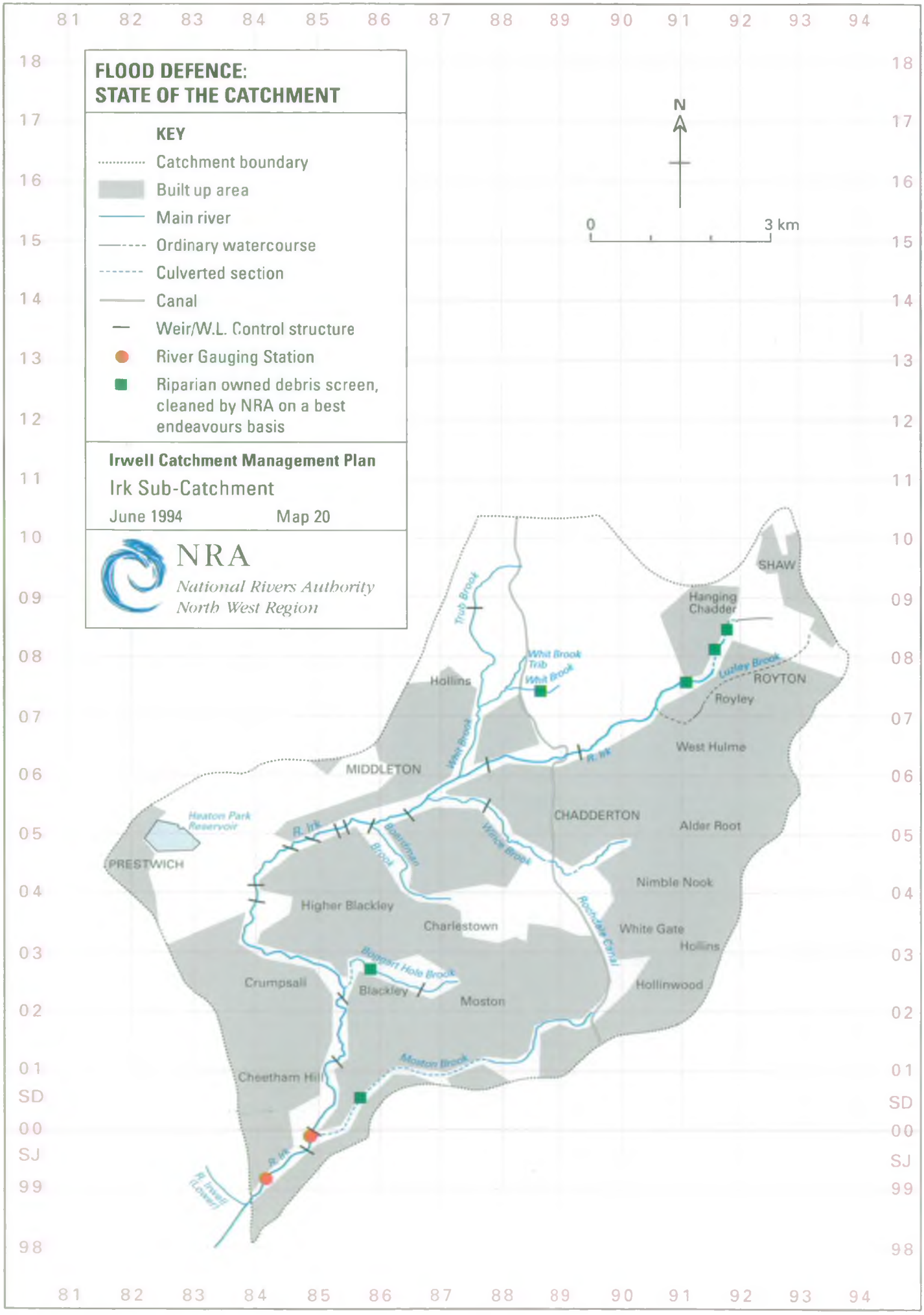
Irk Sub-Catchment

June 1994 Map 21

NRA
National Rivers Authority
North West Region

N

0 3 km


81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 SD 00 SJ 99 98
FLOOD DEFENCE:
STATE OF THE CATCHMENT
KEY
Catchment boundary
Built up area
Main river
Ordinary watercourse
Culverted section
Canal
Weir/W.L. Control structure
River Gauging Station
Riparian owned debris screen, cleaned by NRA on a best endeavours basis
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 20
NRA
National Rivers Authority
North West Region
N
0
3 km
SHAW
Hanging Chadder
ROYTON
Royley
Lodley Brook
Hollins
Whit Brook Trib
Whit Brook
Trub Brook
West Hulme
MIDDLETON
R. Irk
CHADDERTON
Alder Root
Heaton Park Reservoir
PRESTWICH
Boarshaw Brook
White Brook
Nimble Nook
Higher Blackley
Charlestown
White Gate
Hollins
Rochdale Canal
Bognor Hole Brook
Crumpsall
Blackley
Moston
Hollinwood
Moston Brook
Cheetham Hill
R. Irwell (Lower)

FLOOD DEFENCE: FLOOD RISK AREAS

KEY

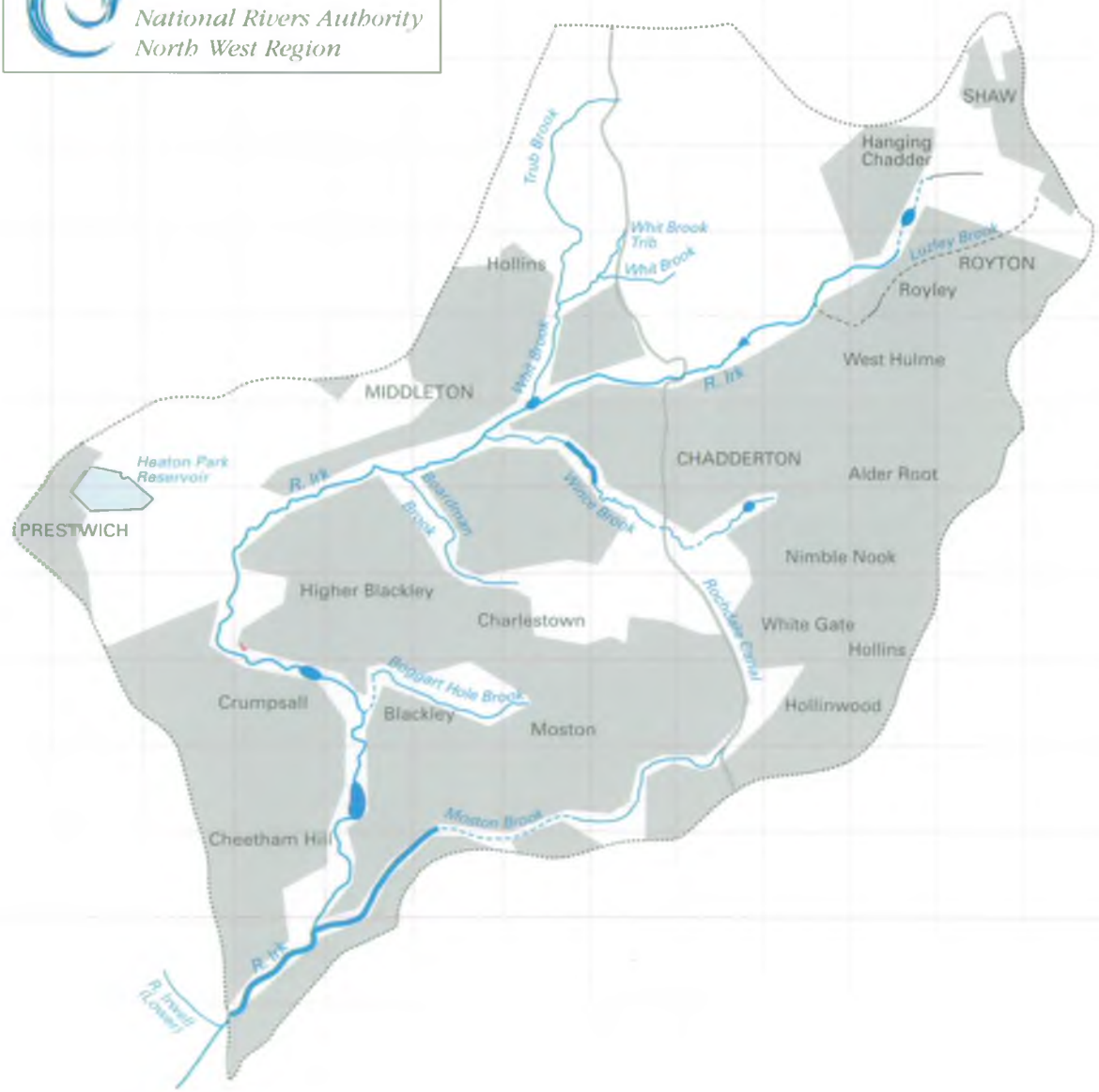
- Catchment boundary
- Built up area
- Main river
- Ordinary watercourse
- Culverted section
- Canal
- Flood risk areas

Irwell Catchment Management Plan

Irk Sub-Catchment

June 1994 Map 19

NRA
National Rivers Authority
North West Region



4. CURRENT STATE OF THE CATCHMENT

4.1 STATE OF THE CATCHMENT : FLOOD DEFENCE (MAPS 19, 20 & 21)

4.1.1 General

A recent review of all known potential flooding problems in the catchment has been undertaken and the results have been used when compiling the Issues and Options section, and producing a map showing Flood Risk Areas. This information is the best available at this time, and no guarantee can be given to its accuracy or completeness, due to insufficient data available. The flood risk areas shown may be larger in extent during more extreme events than those considered, therefore, putting additional property at risk.

Having identified the need for, and standard of, future flood defence works required, it is possible to assess the condition of the existing flood defences within the catchment against these targets.

4.1.2 Issues Identified

a) **Catchment Wide Issues**

Catchment Wide Issues Nos. 1 - 17 are dealt with in full in Section 4 of Chapter One, River Irwell Introduction document. Issues CW18 and CW19 are dealt with in Section 4.3.3 of this document.

There are no catchment wide issues in the Irk Sub-Catchment relating to Flood Defence.

b) **Site Specific Issues (Map 23)**

Issue SS2 River Irk - Harewood Drive, Royton

Flooding to housing and road due to debris screen blockages. A new or improved screen would help to alleviate the flooding problem.

Issue SS5 Whit Brook, Middleton

Flooding to industrial premises has occurred here in the past and raised defences are required to alleviate the problem.

Issue SS6 River Irk - Middleton Town Centre

The River Irk passes through a twin box culvert underneath Middleton town centre, at the downstream end of which is a stilling basin, designed to reduce velocities in the natural channel downstream. Unfortunately, this also acts as a silt trap and requires frequent clearance.

Issue SS8 Access Ramps

Under the 'Urban Channel Access Ramp' scheme, it is proposed to provide access ramps on the River Irk at Middleton and Collyhurst.

Issue SS12 River Irk - Delaunays Road, Blackley

This stretch of the River Irk runs through a long length of culvert under the ICI Hexagon Tower and the works has been subject to flooding in the past. Frequent de-silting is therefore carried out to maintain the existing level of flood protection.

Issue SS13 River Irk - BICC Works, Blackley

The river flows in a concrete lined channel through the BICC works, and in places is in a poor state of repair.

Issue SS14 River Irk - Hendam Vale

This area was the subject of a capital scheme completed in 1987, which raised the level of flood protection from 1 in 5 years to 1 in 25 years. This is still lower than the target standard for industrial premises.

Issue SS17 Moston Brook, Collyhurst

Frequent heavy maintenance works are required in the lower reaches of this watercourse to remove rubble carried downstream from decaying urban structures.

Issue SS18 River Irk - Red Bank, Collyhurst Road to Mintex Don, Hendam Vale

This stretch of the River Irk suffers from debris build-up in the bed in the form of rubble and hard-core from dilapidated structures upstream. If this is not removed it reduces the available channel capacity and also causes Moston Brook outfall to become partially blocked. This particular stretch has had a significant amount of revenue money expended on it in the past to relieve flooding to Collyhurst Road and numerous industrial premises.

4.2 STATE OF THE CATCHMENT : WATER QUANTITY

4.2.1 General

Objectives and targets need to be set in relation to meeting existing and future demand for water abstraction in the catchment for potable water supply, industrial and agricultural uses. In addition targets will be set, where appropriate, for minimum residual flows and minimum control levels to protect other water uses and users within the catchment.

The present conditions in the catchment are assessed by considering the resource usage and river flow/river level conditions.

The current status of the catchment is then obtained by comparison of present conditions with use-related targets.

4.2.2 Local Hydrometric Network

River Level Recording

In the River Irk Catchment there is one level monitoring station at Scotland Weir, almost under Victoria Station in the city centre of Manchester. The records from the Scotland Weir station date from 1949 and in the past recorded both river level and flows but now only record river levels. These records have been used for Water Quality management.

Rainfall Monitoring

There are two raingauge sites within the Irk Catchment monitored by the NRA. At Heaton park there are two rain gauges, one a tipping bucket type rain gauge which monitors rainfall totals and intensity, the other rain gauge records daily totals only. The other site, at Royton STW records daily totals only.

4.2.3 Issues Identified

a) Catchment Wide Issues

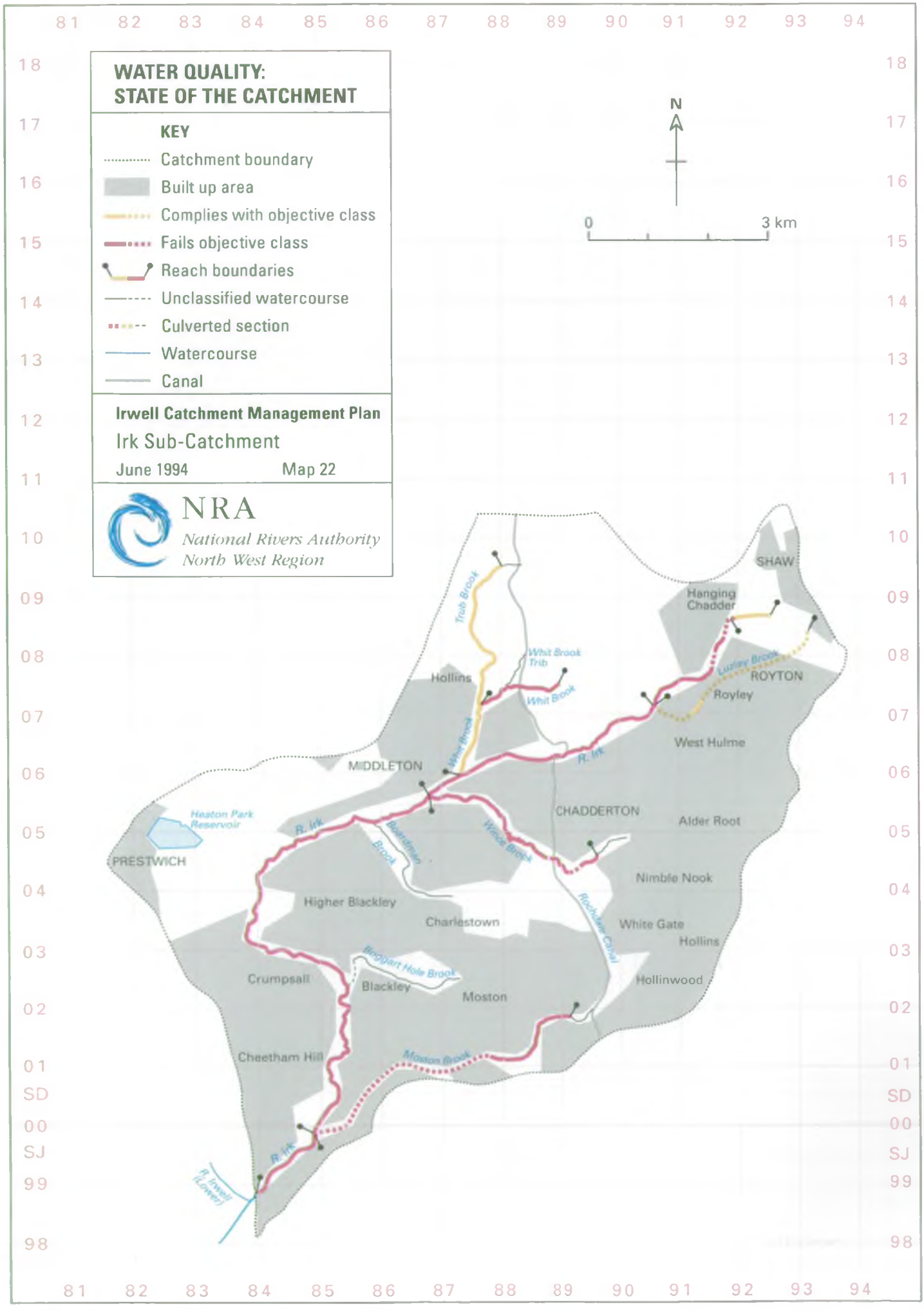
Catchment Wide Issues Nos. 1 - 17 are dealt with in full in Section 4 of Chapter One, River Irwell Introduction document. Issues CW18 and CW19 are dealt with in Section 4.3.3 of this document.

There are no catchment wide issues in the Irk Sub-Catchment relating to Water Quantity.

b) Site Specific Issues (Map 23)

Issue SS19 River Irk - Scotland Weir Gauging Station

Because the weir has started to crumble at Scotland Weir a site upstream, at Collyhurst, will replace Scotland Weir in 1994, to increase the quality of measurement. Once this improvement is in place, the long term hydrometric needs in this catchment requiring permanent conversion of river levels into flow will be met.


WATER QUALITY:
STATE OF THE CATCHMENT
KEY
Catchment boundary
Built up area
Complies with objective class
Fails objective class
Reach boundaries
Unclassified watercourse
Culverted section
Watercourse
Canal
Irwell Catchment Management Plan
Irk Sub-Catchment
June 1994
Map 22
NRA
National Rivers Authority
North West Region
N
0
3 km
81 82 83 84 85 86 87 88 89 90 91 92 93 94
18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 SD 00 SJ 99 98
SHAW
Hanging Chadder
ROYTON
Royley
Luzley Brook
Hollins
Whit Brook Trib
Whit Brook
Trub Brook
Wilbur Brook
MIDDLETON
R. Irk
West Hulme
CHADDERTON
Alder Root
Heaton Park Reservoir
PRESTWICH
Bloomfield Brook
Wince Brook
Nimble Nook
Higher Blackley
Charlestown
Rochdale Canal
White Gate
Hollins
Ringlett Hole Brook
Crumpsall
Blackley
Moston
Hollinwood
Cheetham Hill
Mosses Brook
R. Irwell (Lower)

4.3 STATE OF THE CATCHMENT : WATER QUALITY (MAP 22)

The routine chemical and biological sampling programme of the NRA is used to assess compliance with the targets set.

4.3.1 Water Quality Classification

a) Present Water Quality Classification Objectives
National Water Council (NWC) Classification

This assessment of compliance with the Long Term Objectives is on the basis of the NWC class derived for the calendar year 1993. Of the ten reaches in the Irk Catchment seven fail to meet their Long Term Objectives. This is illustrated on Map 22. The implications in terms of lengths of classified watercourse are tabulated below. The reasons for failure are raised as Issues for this Plan.

CLASS	1993 NWC	LTO
1A	0.0	0.0
1B	0.0	0.0
2	8.6	39.0
3	21.1	-
4	9.3	-

Lengths in Km

b) Future Water Quality Classification Objectives
Statutory Water Quality Objectives (SWQOs)

No targets set as yet.

4.3.2 EC Directives

a) Directive on Dangerous Substances in Water

List I

The most recent reports made to the Department of the Environment on compliance with Environmental Quality Standards for List I substances were on data for the calendar year 1993.

No failures of compliance were reported.

List II

There are no discharges with consent conditions for List II substances or river monitoring points.

b) Directive on Urban Wastewater Treatment

NRA North West Region undertook an assessment exercise in 1993 of all identified storm and emergency overflows on sewerage networks within the region. Within the Irk Catchment of the over 120 overflows identified over 80 were highlighted as unsatisfactory with regard to their impact on the receiving watercourse. Their effect is raised under several Issues for this Plan.

4.3.3 Issues Identified

a) Catchment Wide Issues

Catchment Wide Issues numbers 1 - 17 are dealt with in full in Section 4 of Chapter One, River Irwell Introduction document.

Issue CW18 Periodic aesthetic deterioration of considerable lengths of watercourse on the catchment due to foam.

Foam occurs downstream of the principal sewage treatment works due to chemicals in their effluents. The effect can be variable in extent dependent on a number of factors.

Issue CW19 Lack of fishery due primarily to poor water quality

There are very poor quality or no fisheries within the River Irk Catchment which is due primarily to poor water quality. A "pump priming" exercise may be carried out. This would involve the introduction of appropriate fish species, as and when the prevailing water quality allows, and their monitoring. The other option would be to allow the system to colonise naturally. The timescale for this would be excessive because the extent of pollution in the past has left the upper tributaries virtually devoid of fish that could have acted as a reservoir for colonisation.

b) Site Specific Issues (Map 23)

Issue SS1 River Irk - Cedar Grove SSO to Royton STW

The failure to achieve the objective for this reach has been directly attributable to the organic input discharged via three unsatisfactory sewer overflows at Cedar Grove, Spaw and Haggate, and also domestic wrong connections at the Lakes Estate, Chetwyn Ave., and Royton Cricket Club.

Issue SS3 River Irk - Royton STW to Wince Brook

Failure to achieve the present water quality classification objective for the classified reach. The final effluent, from Royton STW has a high impact on the River Irk within this stretch. Also there is a significant organic load produced by the unsatisfactory southern sewer overflow at Royton STW. The quality of water from upstream also contributes to the stretches failure to meet the water quality objective.

Issue SS4 Whit Brook - Stake Hill to Trub Brook

Failure to meet the present water quality objective for the classified reach. Periodic spillages to and continuous contamination of the storm drainage from Stake Hill Industrial Estate have a significant impact on this reach. There is also some ochreous land drainage in the vicinity of the industrial estates.

Issue SS7 Wince Brook - Foxdenton Lane to the River Irk

The failure to achieve the objective for this reach has been attributable to the organic input discharged via Oldham STW, as well as numerous unsatisfactory sewer overflows within this stretch.

Issue SS9 River Irk - Wince Brook to Moston Brook

The failure to achieve the objective for this reach has been directly attributable to the organic input discharged via numerous unsatisfactory sewer overflows within this stretch and to the upstream quality and that of Wince Brook.

Issue SS11 Boardman Brook

Organic and aesthetic deterioration. This stretch suffers as a consequence of debris and organic inputs being discharged via a number of unsatisfactory sewer overflows.

Issue SS15 Moston Brook - Hale Lane, Failsworth to the River Irk

The failure to achieve the objective for this reach has been directly attributable to the organic input discharged via numerous unsatisfactory sewer overflows.

Issue SS16 River Irk - Moston Brook to the River Irwell

The failure to achieve the objective for this reach has been directly attributable to the organic input discharged via numerous unsatisfactory sewer overflows within this stretch and the upstream quality and that of Moston Brook.

4.4 STATE OF CATCHMENT : PHYSICAL FEATURES

4.4.1 General

The industrial history of the area means that long lengths of river have been re-routed, culverted or restrained within walls and behind weirs. Many of the valleys have been developed or tipped, often to the waters edge. There are large numbers of reservoirs mill lodges and ponds.

A striking range of natural, physical and geomorphological features persist. Substantial sections of river valley remain undeveloped and some areas of flood plain have retained their natural character. Many of the watercourses are actively meandering over a steep stony bed.

Issues that relate to the physical features of the rivers and associated land have been identified.

4.4.2 Issues Identified

a) Catchment Wide Issues

Catchment Wide Issues Nos. 1 - 17 are dealt with in full in Section 4 of Chapter One, River Irwell Introduction document. Issues CW18 and CW19 are dealt with in Section 4.3.3 of this document.

There are no catchment wide issues in the Irk Sub-Catchment relating to Physical Features.

b) Site Specific Issues (Map 23)

Issue SS10 River Irk - River straightened and channelised through Alkrington Woods, Rhodes Lodges and Blackley Forest areas.

River straightened and channelised through Alkrington Woods and Rhodes Lodges and Blackley Forest area. A straightened river has less features of geomorphological interest, less of the variety in depth and flow that are of such value to fish, invertebrates and wildlife.

Issue SS13 River Irk - BICC Works Blackley

An unnatural concrete bed is very hostile, featureless environment. It has no habitat value and may be a barrier to the movement of fish.

Issue SS20 River Irk - Central Manchester

Urban dereliction associated with the watercourse lowers the public's perception of a rivers value and can encourage activities such as fly tipping. It is a particular problem in Central Manchester.

It is important to use appropriate local materials for the repair and construction of walls, bridges and other structures associated with watercourses and include access and riverside walkways where possible.

SITE SPECIFIC ISSUES LOCATION MAPS

KEY

- Catchment boundary
- Built up area
- Watercourse
- Culverted section
- Canal
- SS1 — Stretch of appropriate issue
- SS5 ● — Location of appropriate issue

Irwell Catchment Management Plan

Irk Sub-Catchment

June 1994 Map 23

NRA
National Rivers Authority
North West Region

N

0 3 km

5. ISSUES AND OPTIONS (MAP 23)

5.1 GENERAL

This section of the Plan considers options to address the following issues. The options as presented are the initial thoughts of the North West Region of the NRA and do not constitute policy statements. Comments on the issues and options are invited together with any new ideas/suggestions. They should be considered together with the Catchment Wide Issues 1 - 17 for the River Irwell catchment in Chapter One, River Irwell Introduction document (Section 4).

Wherever possible the body responsible for carrying out each option has been identified. In some cases this is identified as someone other than the NRA. However, the options as presented are intended as a plan to facilitate improvements to the water environment for the benefit of all users. Obviously this will entail many bodies and individuals working together to fulfil the aims and objectives as detailed in this Catchment Management Plan.

5.2 CATCHMENT WIDE ISSUES

Catchment Wide Issues 1 - 17 for the River Irwell Catchment are dealt with in Chapter One River Irwell Introduction document (Section 4). There are two additional catchment wide issues which relate specifically to the River Irk Sub-Catchment.

ISSUE NO: CW18	**Periodic aesthetic deterioration of considerable lengths of watercourse in the catchment due to foam.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Reduction in impact of foam causing/promoting agents in the effluents from Oldham, Royton and Castleton STW.	NWW Ltd to provide appropriate additional treatment at STW or pursue trade effluent control.	Improvement to aesthetic and amenity value.	Cost to NWW Ltd/ trade effluent dischargers and possibly customers.

ISSUE NO: CW19	**Lack of fishery due primarily to poor water quality.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Stocking of appropriate fish species as and when prevailing water quality allows, and monitoring of fish populations.	NRA	Development of Fisheries.	Possible loss of stocks due to intermittent or sporadic pollution.
2. Natural colonisation and monitoring	NRA	Less Cost	Timescale may be unrealistic if there are very few fish in feeder tributaries.

5.3 SITE SPECIFIC ISSUES (MAP 23)

ISSUE NO: SS1	River Irk - Cedar Grove Storm Sewer Overflow to Royton STW **Failure to achieve the present water quality classification objective for the classified reach.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
Combinations of the following:- 1. Reduction in organic and debris load from three unsatisfactory sewer overflows at Cedar Grove, Spaw and Haggate.	As a requirement of the EC Urban Wastewater Treatment Directive. The improvements required to achieve satisfactory performance have already been agreed. NWW Ltd to undertake capital works.	Achievement of the present water quality classification objective. Improvement to the aesthetic and amenity value and fishery potential	Cost to NWW Ltd and possibly customers. **Cont'd....**

ISSUE NO: SSI Cont'd.	River Irk - Cedar Grove Storm Sewer Overflow to Royton STW Failure to achieve the present water quality classification objective for the classified reach.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
2. Elimination of organic load from domestic waste wrongly directed to surface water drains in the vicinity of the Lakes Estate, Chetwyn Avenue and Royton Cricket Club.	NRA to pursue investigation / enforcement work. NWW Ltd/ Oldham MBC to undertake investigation/ enforcement work. NWW Ltd/ householders to undertake remedial works.	Achievement of the present water quality classification objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd (and possibly customers)/Oldham MBC Cost to NWW Ltd (and possibly customers)/ householders.

MBC - Metropolitan Borough Council

The achievement of the present water quality classification objective for this reach of the River Irk has additional advantages for the downstream classified reach of the River Irk. The downstream reach is considered in under Issue SS3.

ISSUE NO: SS2	River Irk - Harewood Drive, Royton. Flooding to housing and road.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Provide new debris screen to culvert entrance.	NRA	Improves existing level of flood protection.	Scheme cost may exceed benefits.
2. Improve existing debris screen.	NRA	Improves existing level of flood protection.	Scheme cost may exceed benefits.
3. Construct a floodwater bypass to existing screen.	NRA	Improves existing level of flood protection.	Scheme cost may exceed benefits.

ISSUE NO: SS3	River Irk - Royton STW to Wince Brook Failure to achieve the present water quality classification objective for the classified reach.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
Combinations of the following:-			
1. Reduction in organic load from Royton STW.	NRA to review consent conditions and promote within other regulatory influences capital expenditure by NWW Ltd NWW Ltd to undertake capital works.	Achievement of present water quality classification objective. Improvement to aesthetic and amenity value and fishery potential.	Cost to NWW Ltd and possibly customers. **Cont'd....**

ISSUE NO: SS3 Cont'd.	River Irk - Royton STW to Wince Brook **Failure to achieve the present water quality classification objective for the classified reach.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
2. Reduction in the organic and debris load from the unsatisfactory southern sewer overflow at Royton STW.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd to agree improvements required to achieve satisfactory performance. NWW Ltd to Undertake capital works.	Achievement of the present water quality classification objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd and possibly customers.

STW - Sewage Treatment Works

Achievement of the present water quality classification objective also requires improvements to the upstream reach. The upstream reach is considered under Issue SS1.

Achievement of the present water quality classification objective has additional benefits for the downstream reach of the River Irk. The downstream reach is considered in Issue SS9.

ISSUE NO: SS4	Whit Brook - Stake Hill to Trub Brook. **Failure to achieve present water quality classification objective for the classified reach.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
Combinations of the following:-			
1. Reduction in the impact of contamination of surface water from Stake Hill Industrial Estate.	NRA to continue site inspection programme to promote minimisation of risk of spillages and identify sources of contamination. Industrial unit operators to undertake remedial works as required.	Achievement of the present water quality classification objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to industrial unit operators.
2. Reduction in impact of ochreous discharges in the vicinity of Stake Hill Industrial Estate.	NRA to pursue means of run-off control or site/ watercourse treatment.	Achievement of the present water quality classification objective. Improvement to the aesthetic and amenity value and fishery potential.	Difficulty in establishing liability/ funding with high risk of failure.

ISSUE NO: SS5	Whit Brook, Middleton. Flooding to Industrial Premises.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Improve channel capacity by raising existing defences.	NRA	Improves existing level of flood protection.	Scheme cost may exceed benefits. Some visual and environmental impact.
2. Improve channel capacity by channel re-grading and dredging.	NRA	Improves existing level of flood protection.	Scheme cost may exceed benefits. Disruption to natural bed.

ISSUE NO: SS6	River Irk - Middleton Town Centre. Siltation Problem.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Provide improved access to downstream end of culvert for maintenance.	NRA	Reduced maintenance costs due to improved access.	Silt may continue to build up inside culvert.
2. Provide silt trap to upstream end of culvert and debris collector.	NRA	Silt removed before it enters culverts.	Scheme cost. Land take required. Disruption to natural bed.

ISSUE NO: SS7	Wince Brook - Foxdenton Lane to the River Irk. **Failure to achieve the present water quality classification objective for the classified reach.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
Combinations of the following:-			
1. Reduction in the organic load from Oldham STW.	NRA to review consent conditions and promote within other regulatory influences capital expenditure by NWW Ltd	Achievement of the present water quality classification objective. Improvement to the aesthetic and amenity value and fishery potential.	
	NWW Ltd to undertake capital works.		Cost to NWW Ltd and possibly customers.
2. Reduction in organic and debris load from a number of unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive.		
	NRA/NWW Ltd to agree improvements required to achieve satisfactory performance.		Cost to NWW Ltd and possibly customers.
	NWW Ltd to undertake capital works.		

EC - **European Community**
STW - **Sewage Treatment Works**

Achievement of the present water quality classification objective for Wince Brook has additional advantages for the classified reach of the River Irk downstream of their confluence. The relevant reach is considered under Issue SS9.

ISSUE NO: SS8	Access Ramps **Provide access ramps on the River Irk at Middleton and Collyhurst.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Locations have been identified for the provision of access ramps.	NRA	Reduced cost of maintenance due to improved access.	Scheme cost.

ISSUE NO: SS9	River Irk - Wince Brook to Moston Brook **Failure to achieve the present water quality classification objective for the classified reach.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Reduction in the organic and debris load from a number of unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd to agree improvements required to achieve satisfactory performance. NWW Ltd to undertake capital works.	Achievement of the present water quality classification objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd and possibly customers.

EC - European Community

Achievement of the present water quality classification objective for this reach of the River Irk will also require improvements to the upstream reach and to Wince Brook. The upstream reach is considered under Issue SS3 and Wince Brook under Issue SS7.

Achievement of the present water quality classification objective for this reach has additional advantages for the downstream reach of the River Irk. The downstream reach is considered under Issue SS16.

ISSUE NO: SS10	River Irk River flows in straightened and 'channelised' sections through, e.g. Alkrington Woods, Rhodes Lodges and Blackley Forest areas.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Restoration of river to more 'natural' route across flood plain in these open areas.	NRA/Local Authorities/ Riparian Owners	Provision of more natural channel with increase in wildlife habitats and physical channel characteristics.	Cost and resource implications. Possible impact on flood defences.

ISSUE NO: SS11	Boardman Brook Organic and aesthetic deterioration.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Reduction in the organic and debris load from unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd to agree improvements required to achieve satisfactory performance. NWW Ltd to undertake capital works.	Improvement to the aesthetic and amenity value.	Cost to NWW Ltd and possibly customers.

EC - European Community

ISSUE NO: SS12	River Irk - Delaunays Road, Blackley Siltation of ICI, Hexagon Tower culvert.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Continued maintenance.	NRA	Maintains existing level of flood protection.	Maintenance cost. Disruption to natural bed.
2. Decrease frequency of maintenance.	NRA	Reduced maintenance costs.	Level of protection could fall below target between maintenance operations.
3. Persuade riparian owner to carry out maintenance.	ICI	No cost option to NRA.	Lack of maintenance could affect third parties upstream. Disruption to natural bed.

ISSUE NO: SS13	River Irk - BICC works, Blackley. River flows in concrete lined channel.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Removal of concrete lined channel and return river to more natural state.	NRA/BICC	Possible reduction of repair and maintenance costs in long term. Provision of more natural channel with increase in wildlife habitats and physical channel characteristics.	Resource implications.
2. Continued maintenance.	NRA/BICC	Maintains existing level of flood protection. Debris prevented from entering ICI culvert downstream.	Maintenance cost.

ISSUE NO: SS14	River Irk - Hendam Vale. **Maintenance required to maintain the existing level of flood protection.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Continued maintenance.	NRA	Maintains existing level of flood protection at 25 years.	Maintenance costs.
2. Allow river to find its own regime.	-	No cost to NRA.	Flood protection will gradually reduce from 1 in 25 years to 1 in 5 years.

ISSUE NO: SS15	**Moston Brook - Hale Lane, Failsworth to the River Irk.** **Failure to achieve the present water quality classification objective for the classified reach.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Reduction in the organic and debris load from a number of unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd to agree improvements required to achieve satisfactory performance. NWW Ltd to undertake capital works.	Achievement of the present water quality classification objective. Improvement to the aesthetic and amenity value and fishery potential.	Cost to NWW Ltd and possibly customers.

EC - European Community

Achievement of the present water quality classification objective has additional advantages for the classified reach of the River Irk which Moston Brook flows into. The relevant reach is considered under issue SS16.

ISSUE NO: SS16	River Irk - Moston Brook to the River Irwell. Failure to achieve the present water quality classification objective for the classified reach.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Reduction in the organic and debris load from numerous unsatisfactory sewer overflows.	As a requirement of the EC Urban Wastewater Treatment Directive. NRA/NWW Ltd to agree improvements required to achieve satisfactory performance. NWW Ltd to undertake capital works.	Achievement of the present water quality classification objective. Improvement to the aesthetic and amenity value and fishery potential..	Cost to NWW Ltd and possibly customers.

EC - European Community

Achievement of the present water quality classification objective for this reach also requires improvement to the upstream reach of the River Irk and to Moston Brook. The upstream reach of the River Irk is considered under Issue SS9 and Moston Brook under Issue SS15.

Achievement of the present water quality classification objective for this reach of the River Irk has additional advantages of the River Irwell downstream of their confluence. This is considered in Chapter 7 for the Lower Irwell Sub-Catchment.

ISSUE NO: SS17	Moston Brook - Collyhurst **Frequent heavy maintenance is required to the lower reaches of Moston Brook, to maintain the existing level of flood protection.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Continued maintenance.	NRA	Maintain existing level of flood protection.	Maintenance cost. Frequent disturbance to channel bed.
2. Decrease frequency of maintenance works.	NRA	Reduced maintenance costs.	Level of protection could fall below target between maintenance operations.

ISSUE NO: SS18	River Irk - Red Bank, Collyhurst Road to Mintex Don, Hendam Vale **Maintenance works are required to maintain the existing level of flood protection.**		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Continued maintenance.	NRA	Maintains existing level of flood protection.	Maintenance cost. Frequent disturbance to channel bed.
2. Decrease frequency of maintenance works.	NRA	Reduced maintenance cost.	Level of protection could fall below target between maintenance operations.

ISSUE NO: SS19	River Irk - Scotland Weir Gauging Station Level to flow relationship lost because weir is crumbling away.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. To move site about 1 mile upstream to Collyhurst Weir.	British Rail (current site) NRA (new site)	Monitoring levels against a fixed bed control. Ease of access to site. Flow measurements obtainable throughout range.	Losing 30 year data set.

ISSUE NO: SS20	River Irk - Central Manchester Urban dereliction.		
OPTIONS	**Responsibility**	**Advantages**	**Disadvantages**
1. Support riverside regeneration initiatives including renovation of significant or historic industrial buildings, sympathetic enhancement works, debris removal etc.	Local Authority/ CMDC/Voluntary Sector/Mersey Basin Campaign/NRA	Increases value of river as focal point within Central Manchester.	Cost implications and justifications. Difficult to get consensus of opinion on way forward with different interests being considered.

CMDC - Central Manchester Development Corporation

National Rivers Authority North West Region

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