

# Biodiversity and Waterfront Development

Leeds Local Development Framework



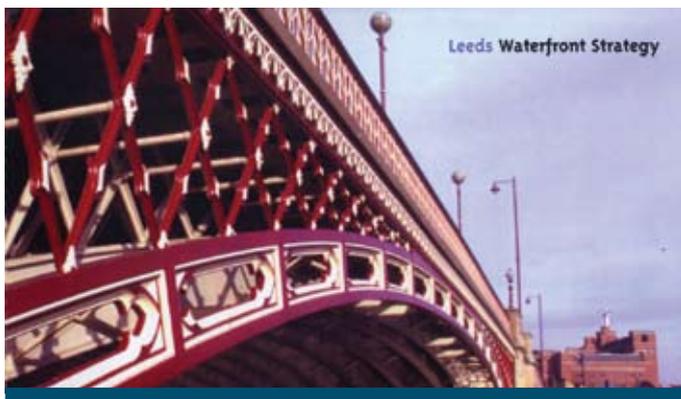
Supplementary Planning Document  
December 2006



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Leeds Waterfront Strategy



Engineered bank in Leeds city centre

## Background

**The Leeds Waterfront Strategy, published in 2002, provides guidance on waterfront design. The Waterfront Strategy acknowledges the need for additional research to address the ecological value of the river Aire corridor through central Leeds and this work forms part of these guidelines. The importance of all waterway corridors for wildlife should not be underestimated and one of the aims of these guidelines is to provide advice on how development can retain and enhance wildlife habitats along all waterways in the Leeds district.**

A natural river system would include a variety of in channel and bankside habitats. However, within urban areas many of these habitats are lost or modified and the channel straightened and often reinforced with hard edges. This simplified habitat provides fewer opportunities for wildlife species to find food, shelter and breeding places.

There are a number of rivers, canals and becks in the Leeds district as illustrated on page 5.

The River Aire, the Leeds and Liverpool canal and the Aire and Calder Navigation form a major habitat corridor running through the urban area of Leeds. Water quality, particularly in the river, has improved significantly in recent years. A major issue now for the river corridor and other watercourses through the urban area is improving the habitat resource to maintain and increase the range of species present.

The river Wharfe flows along the northern boundary of the district. It is the least polluted and most natural major river in West Yorkshire so it is important that any development along the river maintains and enhances this valuable natural feature.

Waterside development provides an opportunity to achieve some of these goals through sympathetic design, implementation and management.

# Aims and Objectives

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## Aim

- to provide a framework to inform, guide and assess new development at waterfront locations throughout the Leeds district to ensure that biodiversity issues are fully considered and addressed.

## Objectives

- to identify and safeguard existing habitats;
- to provide guidance on the ecological design of developments within waterway corridors;
- to provide guidance on the conservation of protected and important species;
- to identify opportunities for habitat enhancement, creation and restoration;
- to encourage appropriate long term habitat management.

# Status

This Supplementary Planning Document (SPD) has been prepared by a number of partner organisations with an interest in waterway ecology. The partners are Leeds City Council, EYE on the Aire (now part of Leeds Voice), Natural England, British Waterways, Yorkshire Wildlife Trust and the Environment Agency.



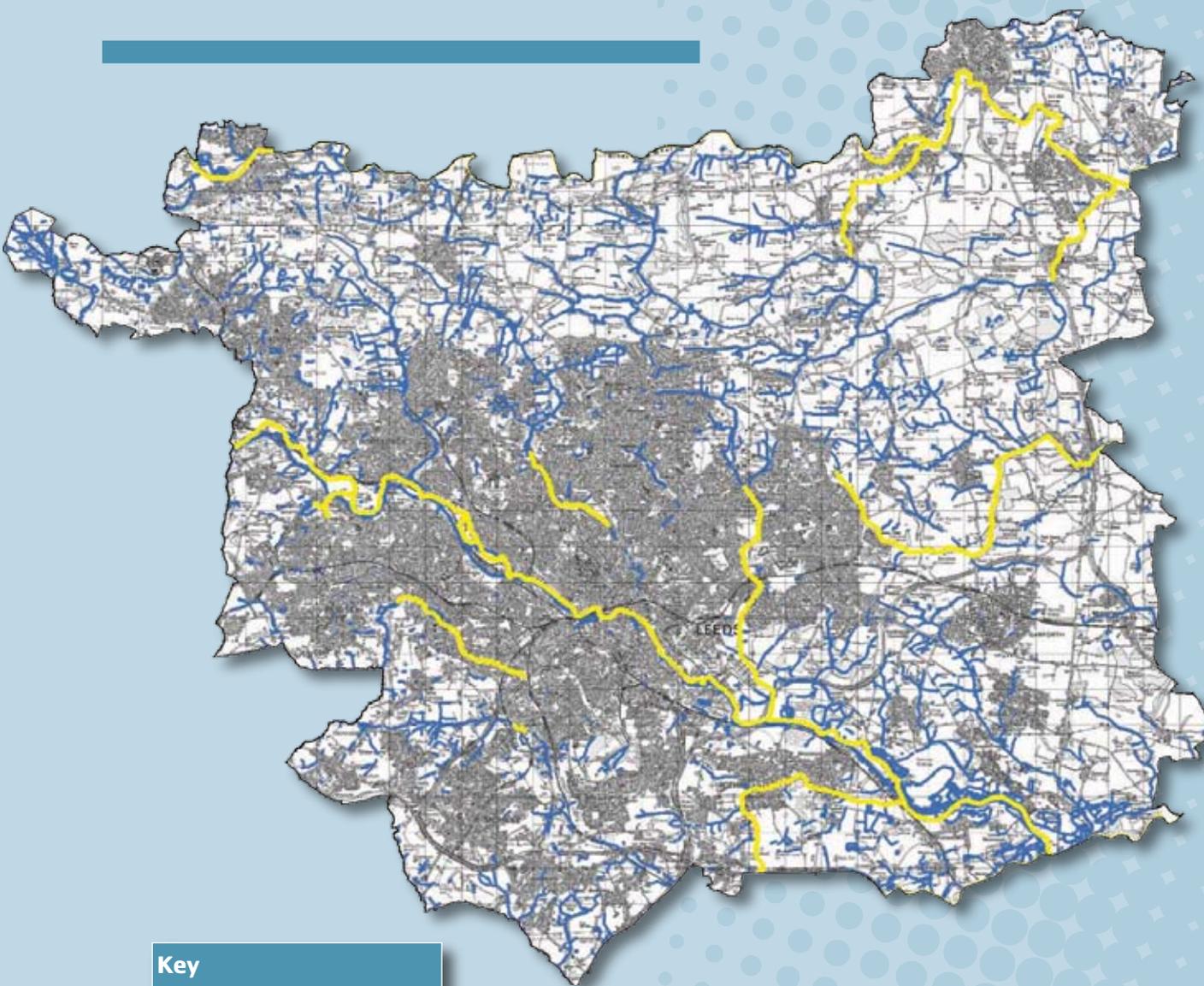
The ecological survey (Appendix 1) focuses on the Leeds Waterfront Strategy area as this is currently the zone of greatest development pressure. However, the guidelines in this document are applicable to development proposals adjacent to all watercourses within the district. The guidelines will apply to all developments (except individual householder applications) adjacent to rivers, becks or canals within the Leeds district.

## Relationship with other Documents

The guidelines should be read in conjunction with the Leeds Waterfront Strategy (supplementary guidance 21).



# Waterways in Leeds



## Key

Main rivers

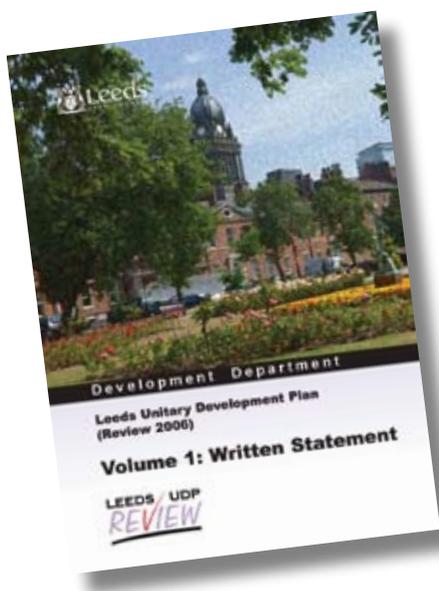


Ordinary watercourses



# Policy Background

This SPD expands the following policies in the Leeds Unitary Development Plan Review (2006).



## GP7

Where development would not otherwise be acceptable and a condition would not be effective, a planning obligation will be necessary before planning permission is granted. This obligation should cover those matters which would otherwise result in permission being withheld and if possible should enhance the overall quality of the development.

Its requirements should be necessary, relevant to planning, directly related to the proposed development, fairly and reasonably related in scale and kind to the proposed development and reasonable in all other respects.

## N8

The strategic network of urban green corridors links the main urban area with the countryside. These corridors provide or have potential to provide for informal recreation and also contribute to visual amenity and nature conservation. Within these corridors development proposals should ensure that:

- i. any existing corridor function of the land is retained, enhanced or replaced; and
- ii. where there is potential to create a link between existing green spaces provision is made for one or more corridor function.

## N9

All development proposals should respect and where possible enhance the intrinsic value of land in fulfilling a corridor function in terms of access, recreation, nature conservation and visual amenity.

## N39

Culverting or canalisation of watercourses within or related to development sites will not normally be permitted, unless there are public safety considerations or development could not be achieved in any other way. The City Council will promote actively re-opening culverts and restoration of canalised watercourses to a more natural state.

## N49

Development will not normally be permitted which threatens significant net depletion or impoverishment of the district's wildlife or habitat resources, geological features or landforms. Design of new development, including landscaping, should minimise its potential adverse impact.

## **N50**

Development will not be permitted which would seriously harm, either directly or indirectly, through any means, a SSSI, LNR, SEGI or LNA.

In considering development proposals for any of the above nature sites the needs of the development and the requirements of nature conservation will be examined. In particular account will be taken of:

- i. The extent and significance of potential damage to nature conservation interest;
- ii. The extent to which that damage could be reduced by imposing conditions on a planning permission;
- iii. The importance of the proposed development to the local, regional or national interest;
- iv. In the case of a LNA, whether a replacement site of equivalent nature conservation interest can be provided within the same locality.

## **N51**

The design of new development, including landscaping, should wherever possible enhance existing wildlife habitats and provide new areas for wildlife as opportunities arise. Where new development is proposed adjacent to any area of existing nature conservation interest, a buffer zone will be required.

## **LT6B**

The City Council will seek where appropriate to secure footpath access and public rights of way along both banks of the River Aire and its major tributaries, and also along the Leeds canal system, having regard to public safety and nature conservation interests.

## **CC1**

Where city centre development proposals would not otherwise be acceptable and a condition would not be effective, a planning obligation will be necessary for planning permission to be granted. Where it would be relevant to the development proposed the City Council will seek to conclude a planning obligation to:

- i. achieve or contribute towards specific elements of the transport strategy, environmental improvements or community facilities, including provision of an acceptable balance of uses in mixed use developments, or
- ii. make proportionate financial contribution through commuted payments, to be used by the City Council to secure elements of the transport strategy, environmental improvements or community facilities.

Any obligations must comply with the tests set out in the final sentence of policy GP7.

## **LD1**

Any landscape scheme should normally: ...

- v. Protect existing vegetation, including shrubs, hedges and trees. Sufficient space is to be allowed around buildings to enable existing trees to be retained in a healthy condition and both existing and new trees to grow to maturity without significant adverse effect on the amenity or structural stability of buildings;
- vi. Complement existing beneficial landscape, ecological or architectural features and help to integrate them as part of the development.

## **National Planning Policy**

National policies of particular relevance to this supplementary planning document are set out in Planning Policy Statement 1 Delivering Sustainable Development, Planning Policy Statement 9 Biodiversity and Geological Conservation and Planning Policy Statement 25 Development and Flood Risk.



The river corridor provides important amenity space



Mute swans with cygnets in Leeds city centre

## An Asset for the Future

The waterfront area represents a major asset for the city of Leeds and the main river and beck corridors provide an essential resource for wildlife and a focus for recreation. For many years the city centre turned its back to the river but the potential of this area and other waterside locations is now being realised as an attractive backdrop for both residential and commercial development.

An attractive waterfront location can add significant value to a development.

The river and canal corridor provides valuable linear open space for people living and working in the city centre. Access to quality open spaces and everyday contact with nature makes an important contribution to quality of life, particularly for people living in urban areas.

Natural areas along the waterfront provide an attractive contrast to the heavily managed parks and formal gardens that provide 'open green space' in much of the city and the small enclosed planted borders within residents' own gardens. The bankside vegetation and over-hanging trees bring a sense of the countryside into the very heart of the city as their 'wildness' helps to break up the uniformity of straight lines and hard surfaces, adding natural shapes, colours and depth. These guidelines seek to build on this strength and to realise the full potential of waterside developments for both people and wildlife.



The River Aire brings a taste of the countryside to Leeds city centre



Woodland and marginal vegetation along the River Aire

# Guidelines

## Ecological Assessment

1. An ecological assessment will be required to accompany the submission of all planning applications for major development on sites with a river, beck or canal frontage.

Major development is defined in Circular 15/92 and covers the following categories of development:

- The erection of 10 or more dwellings, or if this is not known, where the site is 0.5 hectares or more;
- In other cases, where the floorspace to be created is 1000 sq metres or the site area is 1 hectare or more;
- The winning and working of minerals or the use of land for mineral working deposits;
- All waste developments, meaning any development designed to be used wholly or mainly for the purpose of treating, storing, processing or disposing of refuse or waste materials.

The City Council will also require an ecological assessment for smaller developments where sensitive habitats, protected species or the function of waterways as a continuing wildlife corridor may be affected.

Extract from Waterfront Ecological Survey

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Marginal vegetation next to Leeds Bridge Stone walls provide opportunities for plants to colonise

Where there is a delay between planning permission being granted and the commencement of development follow up surveys, particularly for protected species, may be required. The survey data presented in Appendix 1 should be used as a guide to existing habitats and features present within the Waterfront Strategy area at the time of the survey. However, ecological assessments for individual development sites will be necessary to provide a detailed description of the habitats, features and species present and to identify key issues for consideration. The assessment should include all land affected by the development, particularly where habitats may have developed on previously developed or unused land.

Surveys within the Waterfront Strategy area should be based on the methodology outlined in Appendix 1 rather than more traditional survey methodologies, such as Phase 1 habitat survey and National Vegetation Classification, and the habitat assessment should take account of the urban context.

All assessments should include consultation with the local biological record centre – West Yorkshire Ecology – to obtain any existing records for the site.

Developers should recognise that meaningful surveys can often only be carried out at certain times of year. For

example, vegetation surveys are most effective during the summer months and bat surveys are generally best carried out during the period May to September when bats are most active. Developers are advised to appoint ecological consultants at an early stage to reduce the likelihood of wildlife issues causing a delay later in the development process. The submitted report should include an assessment of the likely impact of the proposed development; recommendations for impact avoidance and mitigation; and proposals to maintain and enhance, restore or add to biodiversity interests.

### **Retention of Existing Habitats and other Valuable Structures/Features**

#### **2. Existing waterside habitats and features of value for wildlife should be retained.**

Remaining areas of soft vegetated bank and areas of (often vegetated) silt adjacent to engineered banks provide a valuable habitat within the waterfront area. Other features such as vegetated walls, ledges, bridges and floating platforms may also be of value for wildlife.

In assessing development proposals adjacent to rivers, becks and canals the City Council will have regard to the survey data included in Appendix 1 (where the development is within the Waterfront Strategy area) and the results of individual ecological assessments.

Where existing habitats and features of value are present, provision should be made for their retention as part of the site layout. This will require consideration at an early stage in the design process.



This floating platform provides a haul-out site for otters



Native planting introduced to canal side (photo: Yorkshire Wildlife Trust)

### 3. New bridge crossings should be designed and located to avoid the loss of or disturbance to existing habitats or to protected species.

New footbridges should be designed to avoid damaging habitats on the river and canal banks. The design should take account of the additional area required for construction.

### 4. Where loss of habitat is unavoidable, mitigation will be required in the form of alternative habitat provision.

It is anticipated that existing bankside habitats will be lost only in exceptional circumstances, such as to enable construction of a bridge link to avoid providing public access to undisturbed sections of bank. Other habitats may be lost as vacant and underused land is redeveloped. In these circumstances alternative habitat provision or enhancement will be required. This may be provided on site or through a contribution to off site works.

Where bankside habitats are affected it is anticipated that the habitats on nearby sections will be enhanced. For example, this could involve providing a means by which vegetation can colonise engineered banks or the provision of vegetated platforms.

Replacement habitat within a development site could be accommodated on a green roof (see guideline 12 on page 16), through sustainable drainage features and as part of the landscape scheme for the site.



New bridge crossing



Vegetation introduced to sheet piling along the Huddersfield Canal (Photos: Yorkshire Wildlife Trust)

## 5. New sections of engineered bank will generally not be acceptable unless essential for flood defence or safety purposes.

Any works in, over, under or within 8 metres of the bank top of a main river will require the prior formal consent of the Environment Agency under the terms of the Water Resources Act 1991. Main rivers in Leeds are the rivers Aire and Wharfe, Collingham Beck, Oulton Beck and Kirkstall Goit and parts of the following: Cock Beck, Meanwood Beck, Wyke Beck, Wortley Beck, Farnley Wood Beck, Red Beck, Bagley Beck, Holbeck (Otley) and Kelbeck.

The Environment Agency is, in general, opposed to the removal of natural embankments and their replacement with 'hard' engineered structures because of the adverse ecological and morphological effects that are likely to arise.

The Environment Agency will therefore only approve an application to remove or replace a natural embankment where the replacement is a fundamental part of a flood alleviation scheme, there is no reasonably practicable alternative or if the detrimental effect of the replacement would be so minor that they would not justify a more costly alternative. In all cases where it is appropriate to do so adequate mitigation and compensation must be provided for damage caused.

Under the terms of the Council's Land Drainage Byelaws, no person should erect any building or structure (permanent or temporary), or trees and shrubs, within 9 metres of an ordinary watercourse without the prior consent of the Council. This includes engineered banks and similar considerations will apply as in the case of "main rivers".

Any works to culvert or cover over a watercourse (of any kind) require the prior approval of the Council under the terms of the Public Health Act 1936 and the Environment Agency under the terms of the Land Drainage Act 1991.

The Environment Agency will resist culverting on conservation and other grounds and consent for such work will not normally be granted except for access crossings.

Where new engineered banks are installed these should be designed to incorporate vegetation or to allow vegetation to colonise.

## 6. Existing habitats and features of value for wildlife should be protected during construction.

Where important habitats or other features are present on or adjacent to a site, measures will be required to ensure that these are not damaged during construction. This may involve the use of protective fencing or other measures such as controlling run off or other pollution from the site to the water environment. These issues will normally be dealt with by a planning condition.



Otters (Photo: Environment Agency) Water Vole (Photo: Environment Agency)

## Protected Species

### 7. Provision should be made for the conservation of protected and important species.

A number of species receive protection under the Wildlife & Countryside Act 1981 (as amended) and European legislation, which makes it an offence to carry out certain activities without a licence from the relevant authority. Developers are advised to consult Natural England's website [www.naturalengland.org.uk](http://www.naturalengland.org.uk) for an up to date list of protected species and details on how to apply for a licence.

Typical protected species that have been recorded along waterways in the Leeds district and are quite likely to be encountered by developers include otters, bats, water vole, white clawed crayfish, kingfisher and other breeding birds.

Developers should check with the local record centre, West Yorkshire Ecology, for known records of protected species at an early stage (allow 20 working days for data requests). A survey will be required where protected species are known or suspected to be present on or adjacent to a site. The results of the survey should be submitted as part of the planning application. Surveys for many species can only be carried out at certain times of the year, so early discussion with West Yorkshire Ecology can help to prevent avoidable delays.

Where protected species are present a detailed impact avoidance and mitigation scheme will be required.

It is an offence to disturb, injure or kill a number of species or to damage or disturb their habitat without first obtaining a licence from the relevant authority. The granting of planning permission usually does not over-ride the requirement to obtain a licence. Developments can often be delayed considerably where developers have not confirmed the absence of protected species at an early stage in their plans or formulated appropriate mitigation proposals to deal with any which have been recorded.

A number of species have been identified as being of principal importance for the conservation of biodiversity in England (a list is available on the Department of Environment Food and Rural Affairs website - [www.defra.gov.uk](http://www.defra.gov.uk)). Where these species are present on or adjacent to a development site measures will be required to protect them from the adverse effects of development.



Scrub can provide a useful habitat for nesting birds - in this case developing on a vacant brownfield site



Fish pass on weir (Photo: Environment Agency)

## Habitat Management and Enhancement

### 8. Biodiversity enhancements will be sought as part of waterside developments.

Where a watercourse lies within or forms any part of the boundary to a development site, biodiversity enhancements (in addition to any mitigation required under guideline 4) will be sought as part of that development.

The type and scale of enhancement required will vary depending on the size of the development and the habitat and features present within or immediately adjacent to the site. Examples of enhancements include:

- re-opening of culverted watercourses;
- introduction of vegetation to engineered banks;
- creation of meanders along canalised sections of watercourse;
- provision of vegetated aquatic ledges;
- removal of weirs or provision of fish passes to weirs (see below);
- provision of otter holts or other lying up sites for otters;
- habitat improvements for other aquatic or riparian species, such as water vole and white clawed crayfish;
- management or planting of bankside trees, shrubs and other vegetation;
- control of invasive species (see guideline 16).

Weirs can act as significant barriers to fish movement upstream in rivers. The River Aire Fish Pass Action Plan 2005, published by the Environment Agency, identifies priorities for the next five years for the river Aire but fish passes will also be sought where necessary on other weirs.

The City Council anticipates that biodiversity enhancements will be secured largely through planning conditions. However, where on site enhancements cannot be secured contributions will be sought for off site enhancements. Given the variety of watercourses and habitats present in the Leeds district it is not practical to identify all possible enhancements in this document. The need for off site enhancements will be identified at the pre-application stage, wherever possible, and contributions will always be related in scale to the proposed development.

Contributions may be towards projects administered by the City Council or by other organisations such as British Waterways, the Environment Agency or Yorkshire Wildlife Trust.

Assessing each proposal or development in relation to the storage and conveyance of water is vital. Consent is required from the Environment Agency under the Water Resources Act 1981 wherever anyone intends to carry out work on, over, under or within 8m of a designated main river. On other watercourses, known as non-main river, a Land Drainage consent will be required from the Environment Agency where works obstruct the flow of the watercourse such as a culvert, weir or flow control structure. The Environment Agency will consider each proposal individually however, there are measures that may be less likely to conflict with flood defence priorities than others. Applicants are encouraged to consult with the Environment Agency at the pre-application stage.



There will be no requirements for a buffer where existing buildings are retained



Native planting in this pond provides a valuable habitat in the city centre

## 9. Provision should be made for the management/maintenance of existing and new waterside habitats.

As with all on-site landscape, planting and open space proposals there will be a requirement for a maintenance scheme for existing and new habitat features. Where these are retained or created either on or off site as part of a development. Management may be as simple as regular removal of litter or other debris or it may involve more intervention, such as periodic cutting of bankside vegetation to control scrub encroachment.

It is likely that details and responsibilities for management will be required through a planning condition or legal agreement.

Under the Water Resources Act 1991 and the Land Drainage Act 1991 both the Environment Agency and local authorities have permissive powers to maintain watercourses. Their jurisdiction depends on the watercourse designation as 'main river' or 'ordinary watercourse.' However responsibility for general maintenance of watercourses and their banks rests with riparian owners.

## 10. Development should be set back from the banks of rivers, becks and canals to provide/maintain an open corridor and to allow for the retention or creation of soft edge treatments.

The Waterfront Strategy proposes a public zone between new development and the river or canal. The width and character of this zone will vary according to the location with more formal treatments being

accepted within zone 2. Public access will not always be required or appropriate within this zone (see guideline 15 on page 18). The treatment of this zone should reflect existing habitats and species and provide opportunities for enhancement through sympathetic design.

The requirement for an undeveloped buffer will also apply to waterside developments outside the Waterfront Strategy area but it will not apply where an existing building or structure abutting the water is to be retained.

A buffer strip is also generally required for flood defence purposes (to provide access for future maintenance of the watercourse).

Consent from the Environment Agency is required for any proposed works or structures within 8m of a main river of any flood defence maintained by the Environment Agency.

## 11. Landscape schemes should incorporate locally appropriate species to complement existing habitats and features on the site and to provide additional habitats for wildlife.

In general native species of local provenance will be encouraged as these tend to support a greater variety of wildlife than ornamental species.

Landscape schemes should seek to create links between habitat areas, extend existing habitats and create new habitats. West Yorkshire Ecology can provide information on native species that are found locally along the waterfront so that appropriate planting can take place.

Where new tree planting is proposed it should be designed to avoid creating dense shade along continuous stretches of waterway bank.

Forward planning for larger schemes is strongly advised because if large quantities of local provenance plants are required they may need to be specially sourced and grown on. If trees and shrubs are needed the lead-in time may be quite lengthy to ensure that they are grown on to the required size before planting out.

### **New Structures and Features for Wildlife**

#### **12. 'Green' roofs will be encouraged for waterside developments.**

Green roofs can be used on flat or gently sloping roofs. In addition to providing habitat these roofs can reduce maintenance by providing protection to roof structures, help to reduce surface water runoff and can provide an attractive and interesting roofscape.

Green roof at Ecology Building Society offices, Silsden

There are a number of options for green roofs ranging from formal roof gardens, where even trees can be accommodated, to low maintenance sedum roofs. Selection will depend on such factors as cost, load bearing of roof structures, visual amenity and requirement for habitat creation.

Green roofs can also utilise demolition waste or other material from a site to provide a substrate for natural colonisation of vegetation. The idea is to replicate the conditions found on many brownfield sites which often provide habitat for a range of specialist plants, insects and birds.

#### **13. Waterside developments should be designed to incorporate features of value for wildlife.**

New development at waterside locations can make a positive contribution to biodiversity by incorporating new features or structures for wildlife. Within the channel this could include the provision of floating vegetated pontoons or other features such as those on page 11. Within the development this may include the provision of suitably sited bird and bat nesting/roosting sites.

(Photo: Yorkshire Wildlife Trust)

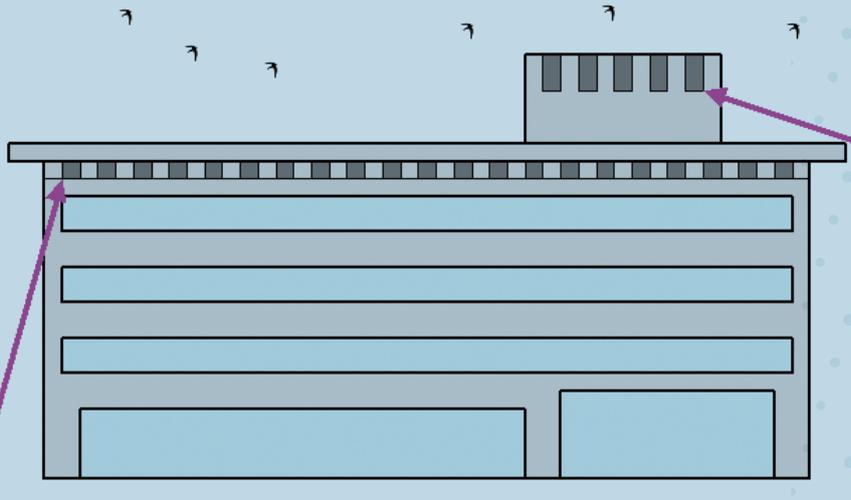


# Incorporating Features of Value for Wildlife

## Example of Provision for Nesting Swifts

Copyright Edward Mayer/London Swifts

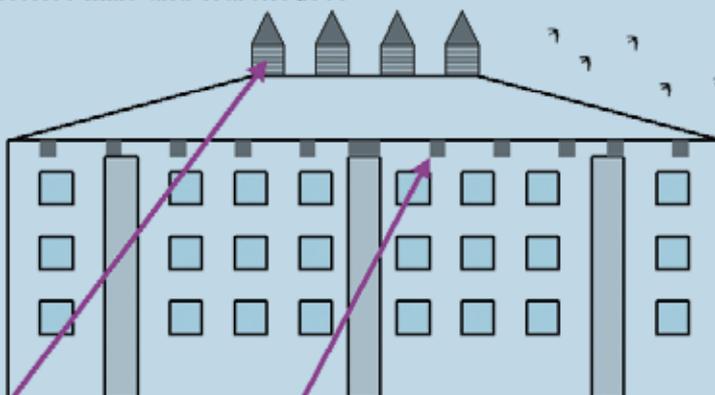
### Modern Architect Designed Buildings



21 concrete "Swift Bricks" (not to scale) have been installed in a band across the top of this building, built into the blockwork, and sheltered from sun and rain under the roof projection. The birds will use the nests without causing any ill effects to either the building or its occupiers - Swifts are very clean at the nest and only there for a fraction of the year. The total cost of the installation shown here would be less than £500.

5 two-storey surface-mounted concrete Swift nest boxes (not to scale) have been fixed to the outer wall of this roof-level plant room. Any uncluttered vertical surface 5 metres or more above ground level and with clear adjacent airspace will suffice.

### Old Factories Mills and Warehouses



Old factories, mills and warehouses are often home to many Swifts, living in holes and crevices under windows, gutters and behind pipes. Renovation usually deprives them of their homes, but with a bit of care and skill colonies of Swifts may easily be preserved.

Capacious Swift nestplaces can be built into the ventilation turrets, the Swifts gaining access to nest trays via the old louvres. Nestbricks can be stitched into the stone or brick work, and nestboxes of various types may be fitted under the eaves in shaded places.



Swift Boxes - Copyright Graham Roberts/Sussex Swift Project



This wooded bank provides an excellent refuge area in the city centre

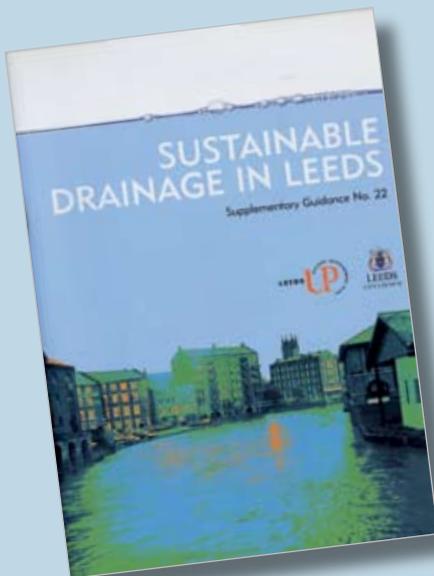


This undisturbed bank of the Leeds Liverpool Canal provides a mallard nesting site

## Sustainable Drainage

### 14. Waterside developments should incorporate sustainable drainage features.

Developers should refer to Sustainable Drainage in Leeds: supplementary guidance 22 where possible sustainable drainage features should be designed to provide wildlife habitats.



## Public Access and Wildlife

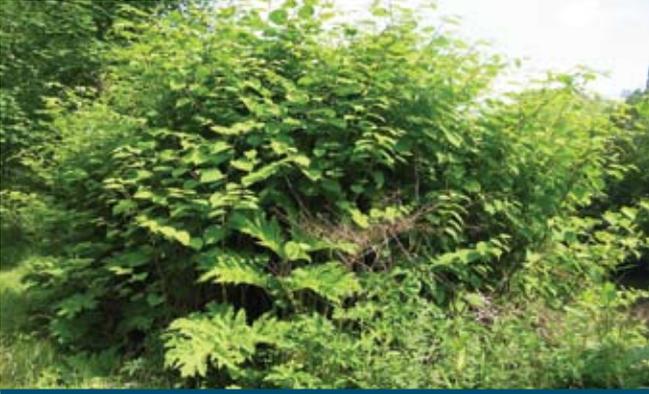
### 15. Careful consideration should be given to proposals for public access to waterside areas, taking into account the impact on sensitive species and habitats.

Species need places to breed, sleep, feed and avoid predation. Areas free from public access provide an important refuge for wildlife and such areas are vital in supporting a range of species which contribute to biodiversity within waterway corridors.

A balance will be required between the objective of improving public access along waterways and the need to retain and provide wildlife refuge areas or corridors. These issues will be considered on a site specific basis as development proposals come forward. The ecological assessment for the site should include consideration of the impact of public access proposals.

New bridges may be required to maintain footpath/cycleway links whilst bypassing wildlife refuge areas.

Planning obligations will be used to secure contributions for new bridges where these are required as part of the development.



Japanese Knotweed and Giant Hogweed growing along the River Aire



Himalayan Balsam - (Photo: Environment Agency)

## Management of Invasive Alien Plant Species

### 16. Measures to control the spread of invasive alien species will be required where these are present on development sites.

A number of introduced species are causing considerable damage to habitats within the UK. Species of particular concern which are present along waterways in Leeds are Japanese Knotweed, Giant Hogweed and Himalayan Balsam. Under the Wildlife and Countryside Act 1981 it is an offence to plant Japanese Knotweed and Giant Hogweed or to cause them to grow in the wild. At present Himalayan Balsam is not covered by this legislation.

The ecological assessment should identify the location of any invasive alien species within the development site. A method statement for the control of these species will normally be required under a planning condition. A control programme may take several years. Where invasive species are removed from the river bank the method statement should also include proposals for the establishment of replacement native vegetation. Management plans should include provision for the control of invasive species.

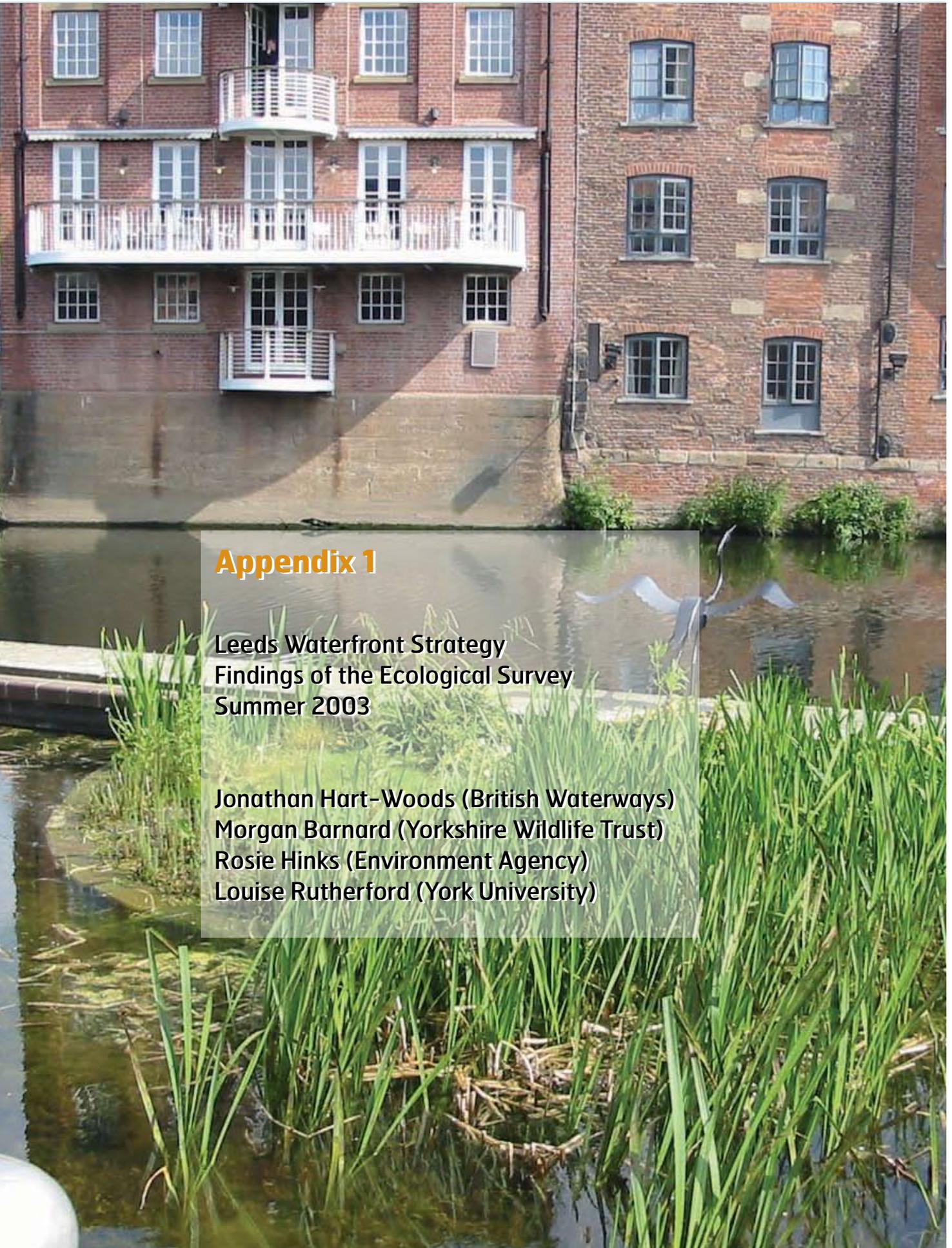
Consent is required from the Environment Agency for the use of herbicides near a watercourse.

Whilst control on individual sites is a useful starting point a successful long term strategy for dealing with invasive species is likely to require a corridor wide approach.

The City Council will encourage the development of corridor wide invasive species control plans.

# References and Further Reading

<b>AUTHOR</b>	<b>DATE</b>	<b>TITLE</b>	<b>PUBLISHER</b>
Anon.	1994	Biodiversity: the UK Action Plan.	HMSO
Anon.	1995	Biodiversity: the UK Steering Group Report Vol. 1: Meeting the Rio Challenge	HMSO
Anon.	1995	Biodiversity: the UK Steering Group Report Vol. 2: Action Plans	HMSO
Briggs, J	1996	Canals-wildlife value and restoration issues British Wildlife 7(6): 365-377	British Wildlife Publishing
Department of Environment,	2002	Working with the Grain of Nature: Food and Rural Affairs a biodiversity strategy for England	DEFRA
De Waal, L.C, Child, L.E and Wade, P.M	1994	Ecology and management of invasive riverside plants	Wiley, Chichester
English Nature		Research Report No. 256. A framework for the future : green networks with multiple uses in and around towns and cities	English Nature
English Nature	2003	Research Report No. 498. Green Roofs: their existing status and potential for conserving biodiversity in urban areas	English Nature
Environment Agency	2003	Guidance for the control of invasive weeds in or near fresh water	Environment Agency
Environment Agency	2005	Help Protect Bats - guidance for works affecting watercourses	Environment Agency
Environment Agency	2005	The River Aire Fish Pass Action Plan	Environment Agency
Environment Agency	2006	The Knotweed Code of Practice	Environment Agency
Gilbert, O.L	1989	The Ecology of Urban Habitats	Clapham and Hall, London
Gilbert, O.L	1992	The ecology of an urban river. British Wildlife 3 (3): 129-136	British Wildlife Publishing
Gilbert, O.L & Pearman, M.C	1988	The Ecology of the Urban River Don	University of Sheffield
Leeds City Council	1998	Sustainable Development Design Guide Supplementary Guidance 10	LCC
Leeds City Council	2000	City Centre Urban Design Strategy	LCC
Leeds City Council	2001	Biodiversity Action Plan	LCC
Leeds City Council	2002	Biodiversity and Development	LCC
Leeds City Council	2004	Sustainable Drainage in Leeds Supplementary Guidance 22	LCC
Leeds City Council	2006	Unitary Development Plan Review.	LCC
The Leeds Initiative	2006	Leeds Waterfront Strategy Partial Review (July 2006)	Leeds Initiative
Oxford, M. J.	2000	Developing Naturally: A Handbook for Incorporating Natural Environments into Planning and Development Ecologists (ALGE)	Association of Local Government
River Restoration Centre		River Restoration Manual	www.therrc.co.uk
RSPB, NRA, RSNC	2001	The New Rivers and Wildlife Handbook	RSPB



## **Appendix 1**

**Leeds Waterfront Strategy  
Findings of the Ecological Survey  
Summer 2003**

**Jonathan Hart-Woods (British Waterways)  
Morgan Barnard (Yorkshire Wildlife Trust)  
Rosie Hinks (Environment Agency)  
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# Introduction

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### Survey Area

The survey focuses on the most urban stretch of the River Aire corridor which passes through the heart of the city of Leeds. The western end of the study begins at Armley Mills and continues to Thwaite Mills, a distance of approximately 6.5km. The land along the river and canal corridor is extremely built up and its use is predominantly commercial and industrial with some residential areas. The channel morphology is highly engineered and bank types range from man-made structures, such as stone masonry and sheet piling, to silt earth and bedrock.

Recreational use is mainly in the form of walking, running, dog-walking, cycling and angling.

### Aims

The primary aim of the ecological survey was to determine the variety, quality and extent of habitats on the River Aire, the Aire and Calder Navigation and the Leeds and Liverpool Canal, between Thwaite Mills and Armley Mills. This geographical area corresponds to that of the Leeds Waterfront Strategy. The initial survey of this area was carried out by British Waterways using a survey method devised to collect a broad spectrum of habitat data. A subsequent survey of the same area was carried out by the Yorkshire Wildlife Trust looking more specifically at man-made and habitat structures rather than flora.

# Survey Methodology

## Preliminary Survey

During a preliminary survey a number of established survey methodologies were considered for application to the Leeds Waterfront Study area as shown in Table 1 (see page 38). These methodologies included National Vegetation Classification, River Landscape Assessment, River Habitat Survey, and River Corridor Survey. All these methodologies were rejected when field tested. They were not suitable for application to this specific urban environment for one or more of the following reasons; inappropriate scale, lacked floral or faunal detail, or were designed for natural channel environments and therefore inapplicable to this urban setting.

The habitats along the corridor were found to be fragmented and sometimes small in size. Therefore it was decided to devise habitat categories that could be defined by the survey team and were particularly significant within this survey area, such as Wall vegetation. This approach would then supply more detailed information specific to the Leeds waterway corridor rather than conforming to general classifications of vegetation based on national classification systems such as the JNCC Phase 1 Survey.

An example of this is the mooring platforms or pontoons which would not be classified under normal survey conditions but play a significant role for some wildlife species along this section of the River Aire corridor.

## Recording of Data

A Geographical Information System (GIS) based methodology was designed in order to produce a map-based survey which would highlight habitats of value throughout the corridor at a scale where detailed information could be incorporated. A format for data collection was devised which allowed the surveyors freedom to record a full range of urban ecological data.

Each distinct area of habitat was drawn (in the field using a palmtop computer) onto a base map. For each of these areas the following categories of data were collected.

- Unique habitat area (polygon) reference identifying extent and location on a map.
- Habitat category (see below for definitions)
- A digital photo of the site.
- Unique photo reference.
- List of flora identified on the site.
- List of fauna identified on the site.
- Bank type and slope
- Initial Management Recommendations
- Waterway type e.g. river or canal
- Weather conditions
- Date
- Name of Surveyor

(This complete data set is recorded in Arcmap GIS held by British Waterways).

The survey was carried out on foot between 16th July and 30th July 2003, during daylight hours only, with three recorders in the field at all times. The methodology was repeatable on each day ensuring that results were consistent across the duration of the survey.

# Appendix 1

A supplementary field survey of the same area was carried out by Yorkshire Wildlife Trust using the maps and recording methods as defined by the previous survey carried out by British Waterways. This survey was carried out by two recorders in September and October 2003 during daylight hours only.

The data collected through the ecological survey was augmented by data collected via desktop research. Records were obtained from West Yorkshire Ecology and other recognised local sources, such as Yorkshire Wildlife Trust.

## Habitat Categories Devised

For the purposes of this survey the most commonly found habitats along the waterfront corridor were identified by the survey team as the following: Amenity planting, Pontoon, Tree-lined bank, Scrub, Rank grassland, Improved grassland, Aquatic vegetation and Wall vegetation. Table 2 (see page 39) provides a summary of the survey results.

When these categories are used it can be assumed that key species will always be present.

### Amenity planting

These areas were most commonly located in the more recently developed sections of the river corridor between Crown Point Bridge and Victoria Bridge. They consist of formally planted beds of ornamental shrub species such as Cotoneaster, Berberis, Lonicera and Pyracantha. Occasional ornamental tree species such as Betula and Sorbus have been planted in amongst the shrubs. The planting is often set back from the waters edge between recent building developments and the



stone wash walls. The planting does not provide a link either physically or ecologically to the river bank.

### Pontoon

These large wooden structures usually 12 metres by 2 metres in size provide mooring opportunities for narrow boats on the navigable sections of the River Aire between Centenary Bridge and Crown Point Bridge. The pontoons are often linked in twos or



threes to provide a substantial shelf between the steep river bank and the water's edge.

The location of the pontoons provides a refuge for some aquatic plant species that require slow flowing water conditions between the bank and the structure such as *Potamogeton* spp. and *Callitriche* spp.

They also provide valuable sites for otters to climb out of the river to rest, feed and mark territory.

### Tree-lined bank

This category describes the thin linear bands of trees that often separate buildings from the river corridor. Significant tree lines exist on the northern bank of the river from Thwaite Mills to Centenary Bridge and on both banks intermittently from Wellington Road Bridge to Armley Mills Bridge. The trees, which may only be two or three deep in some locations, usually comprise the same species: Alder (*Alnus glutinosa*) Crack willow (*Salix fragilis*) White willow (*Salix alba*) Goat willow (*Salix caprea*) Elder (*Sambucus nigra*) and Sycamore (*Acer pseudoplatanus*).



## Scrub

For the purposes of this survey scrub describes transitional grasslands in the first stages of colonisation by pioneer trees, brambles and nettle. Along the corridor this habitat was seen to be located in areas where regular mowing ends and no management occurs. Either side of the Trans Pennine Trail (TPT) and the canal towpath were noted as being locations for this type of habitat. For this reason scrub exists largely as long thin linear strips between buildings and footpaths and not in large open areas of scrub dominated vegetation. Typical species present would be Hawthorn (*Crataegus monogyna*) Sycamore (*Acer pseudoplatanus*) Bramble (*Rubus fruticosus*) Wild raspberry (*Rubus idaeus*) Nettle (*Urtica dioica*) and Rose-bay willowherb (*Chaemerion angustifolium*).



## Rank grasslands

This habitat type refers to nutrient rich grasslands dominated by coarse grasses such as Cocksfoot (*Dactylis glomerata*) Yorkshire fog (*Holcus lanatus*) and False-oat grass (*Arrhenatherum elatius*) with some species of Dock (*Rumex* Spp.) and Ragwort (*Senecio jacobea*) also present.



This habitat type occurs where mowing takes place once or twice per year and the clippings are left in place. Areas between the Trans Pennine Trail and the waters edge running from Knostrop Flood Lock to Thwaite Mills was the largest open area of this habitat type noted. Annual mowing even at low frequency prevents the establishment of woody species associated with Scrub development already described and creates another distinct habitat type along the river corridor.

## Improved grassland

This habitat type describes the dominant vegetation found in the mown areas of the River Aire corridor. The margins of the Trans Pennine Trail and the canal towpaths managed by British Waterways are mown between 4 and 6 times per year. This management prevents encroachment of the surfaces of the path by Scrub species and maintains long thin strips of short grass. The clippings are often left in place after mowing and nutrient enrichments occur when the clippings decompose. Plant species able to exploit these nutrient rich conditions and colonise this distinct linear zone were: Perennial ryegrass (*Lolium perenne*) Annual meadow-grass (*Poa annua*) species of clover (*Trifolium* spp.), Ribwort plantain (*Plantago lanceolata*) and Yarrow (*Achillea millefolium*). As with scrub these areas were generally found to be narrow and linear.



## Wall Vegetation

Between Crown Point Bridge and Victoria Bridge, apart from occasional silt banks, there is little natural river bank vegetation in evidence. However, substantial vegetation can be seen, particularly on the south wash wall of the river, growing out of the mortar of the wall. This vegetation includes species

## Appendix 1

expected in these locations such as Wall rue (*Asplenium ruta-muraria*) Male fern (*Dryopteris filix-mas*) and Harts-tongue fern (*Asplenium scolopendrium*) Ivy-leaved toadflax (*Cymbalaria muralis*) as well as woody vegetation such as Alder and Sycamore and species such as Ragwort and Rose-bay willowherb.



### Aquatic Vegetation

The aquatic vegetation recorded during this study refers generally to the dominant plant species located in the shallow margins at the base of the river-bank and the water's edge. Along the River Aire corridor this margin was dominated by Reed-canary grass (*Phalaris arundinacea*) Reed-sweet grass (*Glyceria maxima*) and Himalayan balsam (*Impatiens glandulifera*).

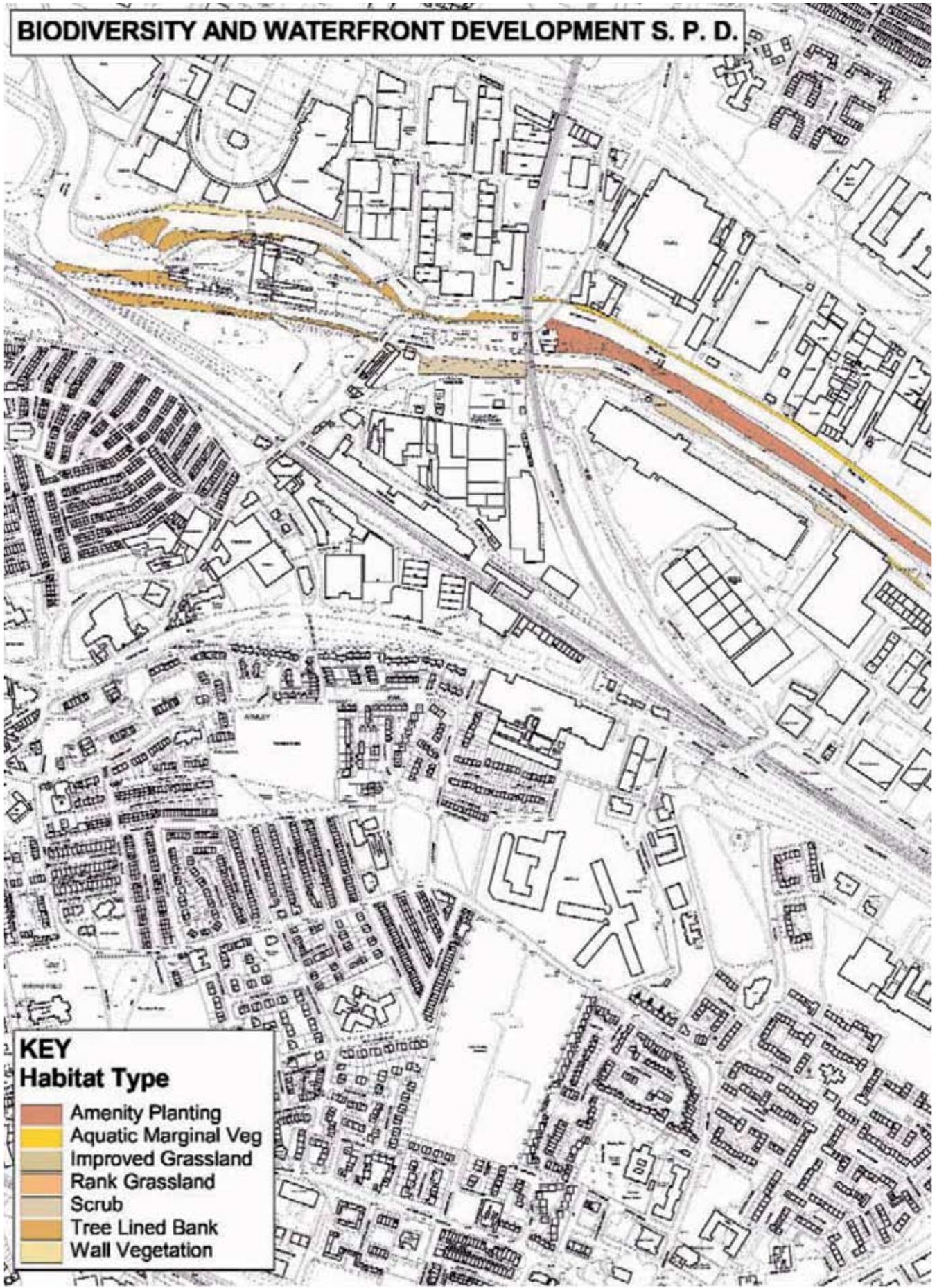
Large stands of these plants were in evidence on the north bank of the river between the Dark Arches and Wellington Road Bridge. Another significant stand of this type can be seen from Crown Point Bridge at the base of the wash wall of the lock island and the weir at Fearn's Wharf. In other areas this vegetation persists as long narrow linear bands in areas of shallow water where silt has accumulated at the base of wash walls. The longest stretch of this aquatic vegetation was recorded along the base of the northern bank wash wall of the river between Leeds Bridge and Victoria Bridge. Small pockets of this vegetation type could also be found at intervals throughout the corridor at the base of banks in shallow silty areas. The vegetation exists sometimes in bands of less than 0.5 metre and can sometimes consist of single plants only. These conditions also favour emergent aquatic species such as Arrowhead (*Sagittaria sagittaria*)

Broad-leaved pondweeds (*Potamogeton* Spp.) Canadian waterweed (*Elodea canadensis*) and Duckweeds (*Lemna* Spp.) as well as Gipsywort (*Lycopus europaeus*) and species of Sedge (*Carex* Spp.) and Rush (*Juncus* Spp.).

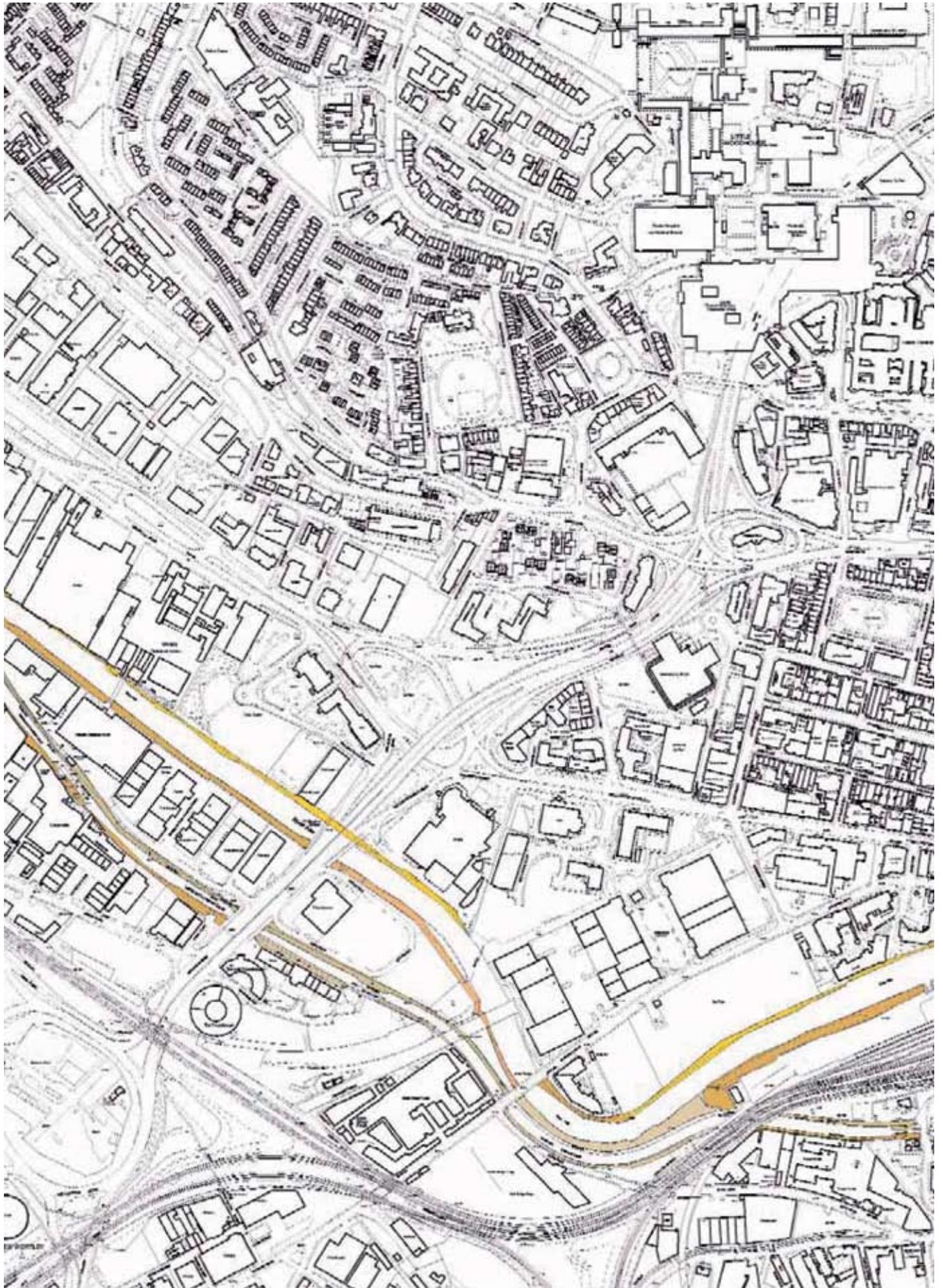
It should also be noted that small stands of other marginal aquatic plants were recorded within the dominant plants of this habitat type. However they were never recorded consistently enough to be included in the dominant plant category. Species such as Bur-reed (*Sparganium* Spp.) Yellow iris (*Iris pseudoacorus*) and Reed-mace (*Typha latifolia*) all occur at intervals throughout the study area either as a component of larger aquatic communities or as small individual stands.



# BIODIVERSITY AND WATERFRONT DEVELOPMENT S. P. D.

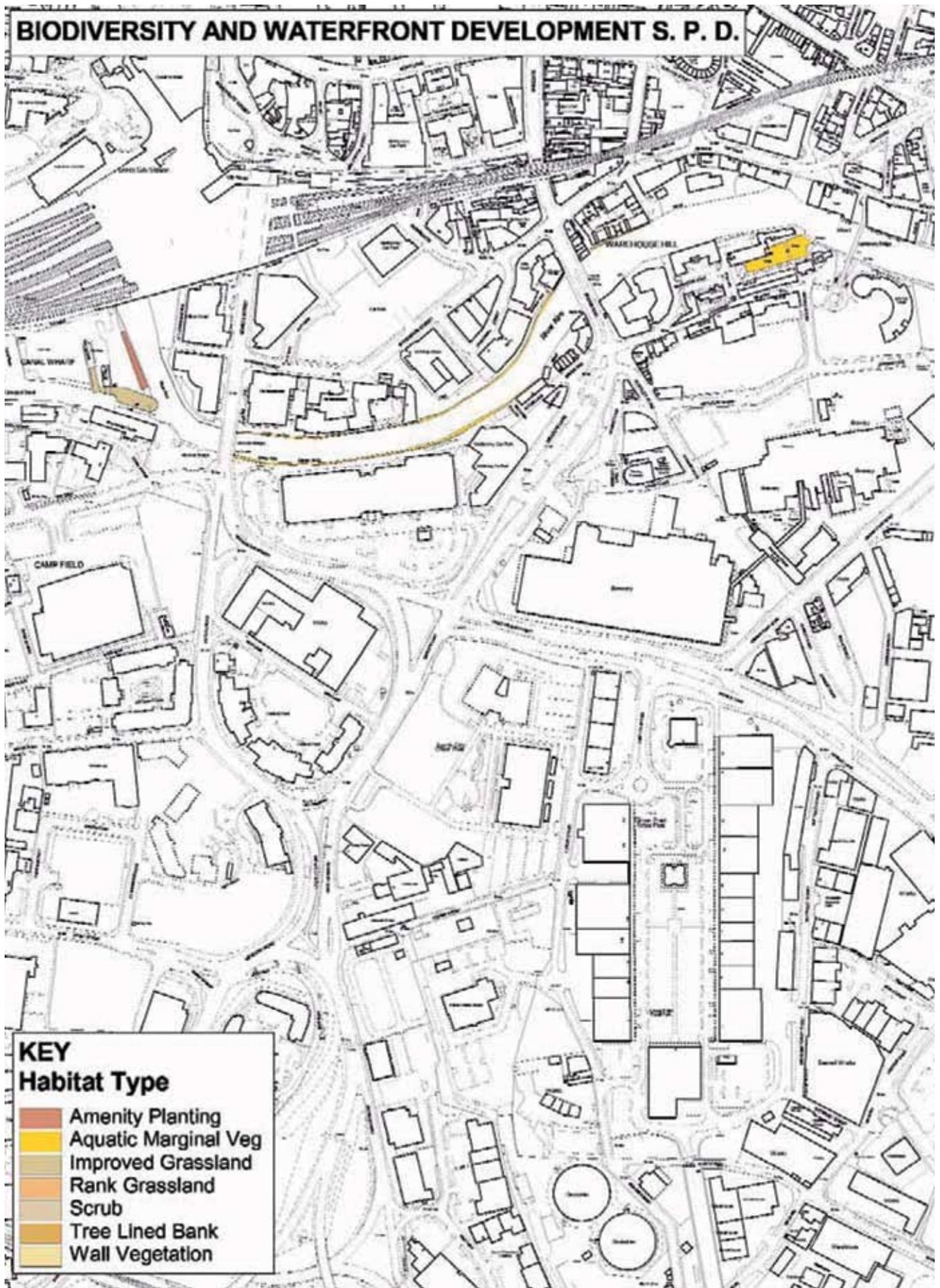


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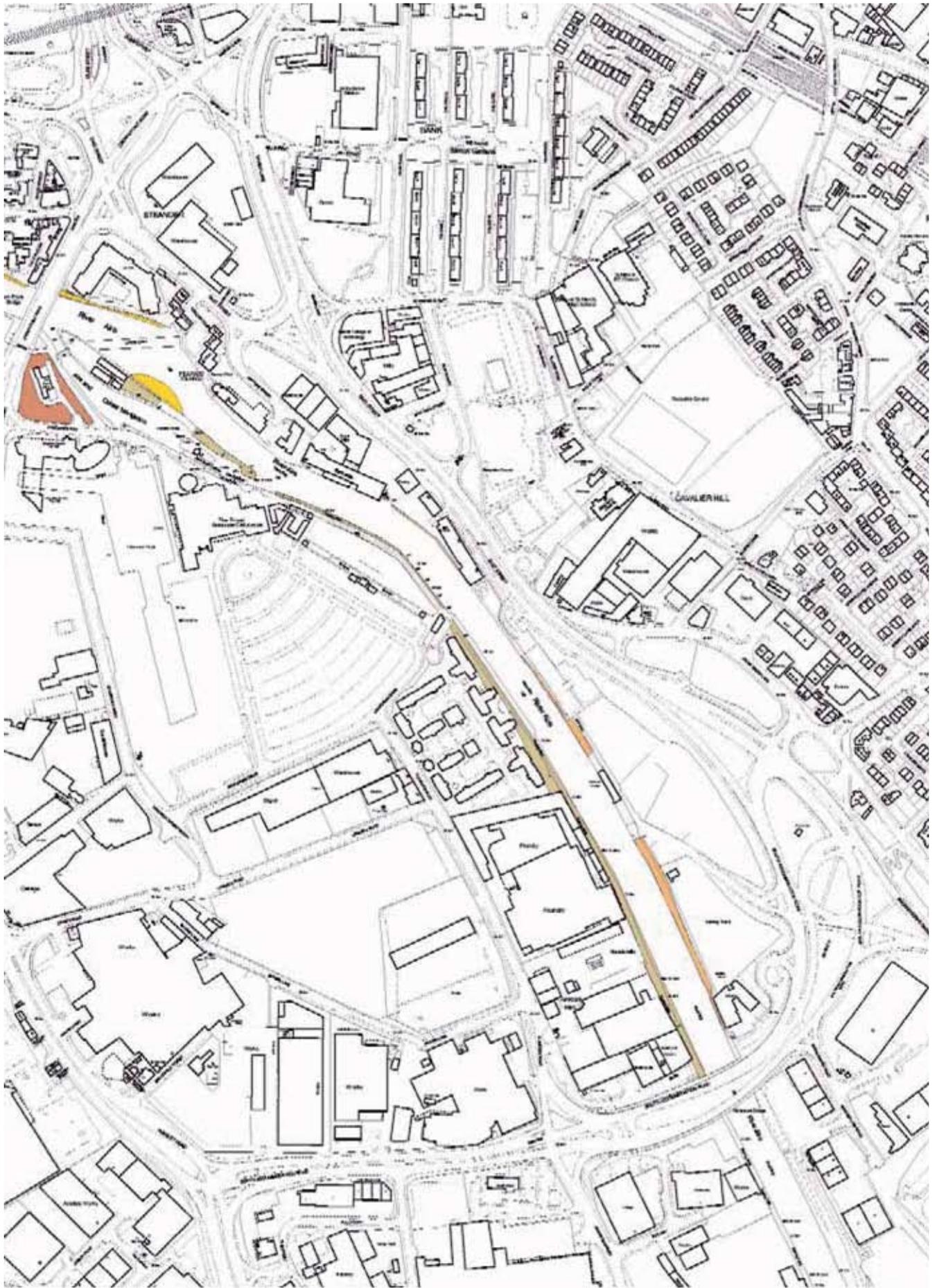


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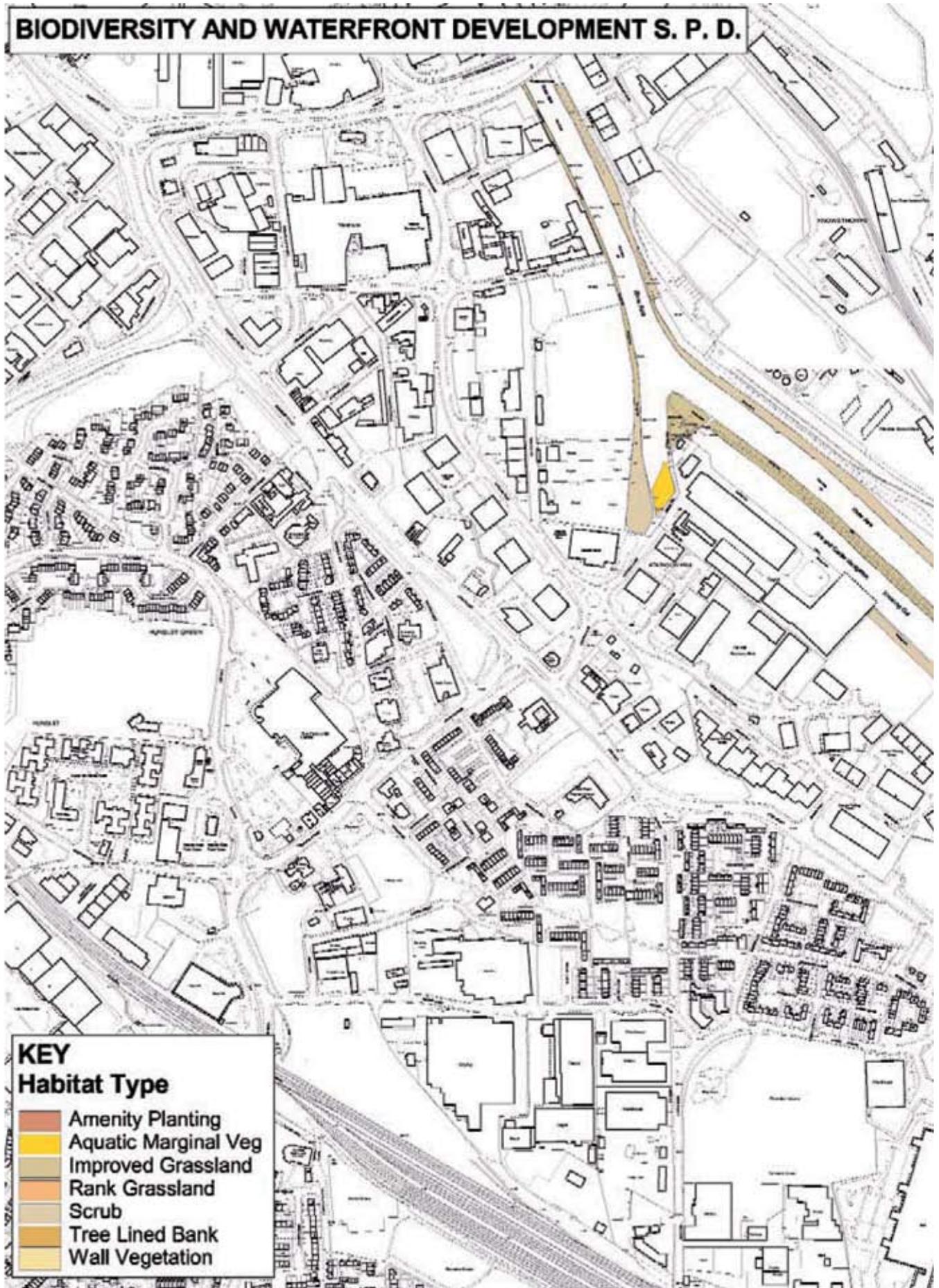
# BIODIVERSITY AND WATERFRONT DEVELOPMENT S. P. D.



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# BIODIVERSITY AND WATERFRONT DEVELOPMENT S. P. D.



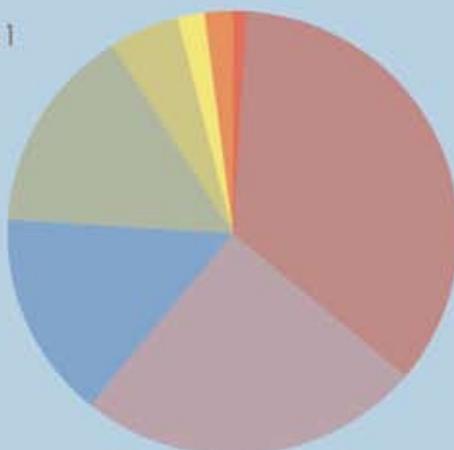


## Findings

### Distribution of Habitat Categories

Figure 1 shows that tree-lined bank was the habitat type that occupied most of the area surveyed, with 35% cover being recorded. Scrub which is a mixture of trees, shrubs and bushes occupied the second largest area of cover within the survey with 25% of area covered. Improved grassland and rank grassland both occupied 15% respectively of the surveyed area. The remaining cover was made of aquatic fringe (5%), amenity planting (2%), and wall vegetation (2%). Floating pontoons occupied the remaining 1% of the surveyed area.

Figure 1



Pontoon 1%  
 Wall Vegetation 2%  
 Amenity Planting 2%  
 Aquatic Vegetation 5%  
 Rank Grassland 15%  
 Improved Grassland 15%  
 Scrub 25%  
 Tree-lined bank 35%

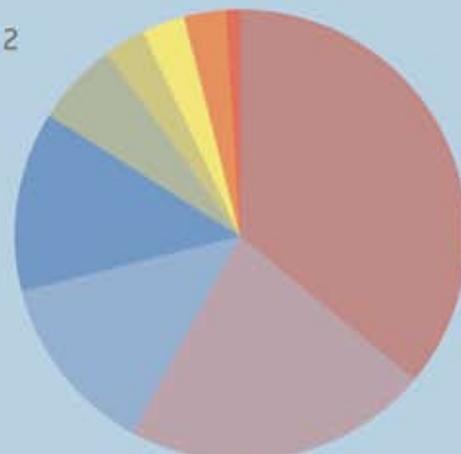
### Distribution of Bank Type

Figure 2 shows the proportion of bank types within the study area, 71% of which are man made. Stone Masonry occupied the largest proportion of area with 36% cover. Bedrock occupied the least area with 1%. Silty bank (22%) was the second largest occupied area with sheet piling and concrete being less dominant (both 13%). Bare earth represented 6% of the surveyed banks, with brick wall, cobble and pontoon each representing 3% of the surveyed banks.

Figure 1: Proportion of Vegetation Types within the Study Area (Data based on habitat area identified in survey, for both river and canal environments)

Figure 2: Proportion of Different Bank Types within the Study Area (Data from bank lengths identified in survey of both canal and river banks)

Figure 2



Bedrock 1%  
 Pontoon 3%  
 Cobble 3%  
 Brickwall 3%  
 Earth 6%  
 Sheet Piling 13%  
 Concrete 13%  
 Silty Bank 22%  
 Stone Masonry 36%

# Evaluation

### Wildlife Value of Habitat Categories

Throughout the study area habitat loss, particularly in the city centre, means that the remaining identified areas of habitat are now of paramount importance for local wildlife. Gaps that are found between mapped areas of habitat (Figure 1) should be viewed as zones for ecological improvement and opportunities for habitat creation, not as areas with no ecological value.

As Table 2 (page 39) shows, although habitats were fragmented and often seemingly insignificant, each habitat category had a rich floral diversity, which in turn supported a rich faunal diversity. Habitat importance should also be judged on the structural value for wildlife (i.e. shelter and freedom from disturbance) rather than just plant species rarity.

Amenity planting is often set back from the water's edge between recent building developments and the stone wash walls. This planting is not without ecological value and provides roosting and nesting cover for small birds such as Dunnock (*Prunella modularis*) Robin (*Erithacus rubicula*) and Wren (*Troglodytes troglodytes*). If suitable species are selected this planting can also provide winter food in the form of berries for birds such as Mistle thrush (*Turdus viscivorus*), Song thrush (*Turdus philomelos*) and Waxwing (*Bombycilla garrulus*)

The mooring pontoons provide preening and roosting locations for gulls and ducks which feed

below the weir at Fearn's Wharf. The pontoons are also used by Otter (*Lutra lutra*) as haul out and feeding points in an area with few undisturbed and accessible refuges.

The tree line provides a continuous corridor for birds that utilise the upper canopy to move up and down the river corridor such as Great tit (*Parus major*) Blue tit (*Parus caeruleus*) and Long-tailed tit (*Aegithalus cordata*) as well as a number of species of Warbler (*Sylviidae* Spp.) The tree line also provides nesting cover for species such as Magpie (*Pica pica*), Carrion crow (*Corvus corax*), Moorhen (*Gallinula chloropus*), Mistle thrush and Blackbird (*Turdus merula*). Kingfisher (*Alcedo atthis*), regularly seen between Fearn's Wharf and Thwaite Mills, requires branches overhanging the river as fishing perches. Evidence of Otters using the tree line for haul out points and foxes (*Vulpes vulpes*) for foraging areas were recorded by the Yorkshire Wildlife Trust survey team in 2003.



Scrub areas, although transitional, provide nesting and roosting habitat for birds such as Bullfinch (*Pyrrhula pyrrhula*), Long-tailed tit, Dunnock and Robin. Scrub areas also provide food and cover for small mammals and feeding areas for larger predators such as foxes and predatory birds such

as Kestrel (*Falco tinnunculus*) and Sparrowhawk (*Accipiter nica*). Butterflies such as Red admiral (*Vanessa atalanta*), Common tortoiseshell (*Aglais urticae*) and Peacock (*Nymphalis io*) also feed on plants found in scrub habitat. Scrub near water provides useful foraging areas for insect feeding species including bats and dragonflies.



During the survey Rank Grassland was seen to be used by the commoner butterflies Meadow brown (*Maniola jurtina*), Peacock, Red admiral and Small tortoiseshell and was also used by a kestrel hunting for small rodents. The remains of a colony of ground nesting bees was found dug up and eaten, probably by fox.

Improved grassland found in the mown areas of the River Aire corridor, the margins of the Trans Pennine Trail and the canal towpaths managed by British Waterways are mown between 4 and 6 times per year. This management prevents encroachment of the surfaces of the path by Scrub species and maintains long thin strips of short grass favoured for feeding by Starlings (*Sturnus vulgaris*) and some duck and thrush species.

The Aquatic Vegetation along the banks and shallow silty areas were used by a number of birds for feeding and preening. Mallard and Moorhen could be seen foraging even on very small areas as could Grey wagtail (*Motacilla cinerea*) and Pied Wagtails (*Motacilla alba yarrellii*). The tracks of Mink (*Mustela vison*) and Brown rat (*Rattus norvegicus*) were also noted in the soft mud in some locations. A Water vole (*Arvicola terrestris*) was recorded feeding in one of these areas close to Knostrop Fall Lock in September 2003. This

vegetation also provides breeding habitat, sunning points and resting places for damsel and dragonflies.

It must also be noted that this study was carried out during low flow and during a particularly dry summer. It would be worthy of further study to resurvey during the winter to determine how many of these communities survive once the flow in the river increases.

Although the woody species of Wall Vegetation are coppiced on an infrequent basis this vegetation remains relatively undisturbed and provides foraging and feeding areas for birds like Blue tit and Wren and food sources for butterflies. This vegetation also provides resting points for damsel and dragonflies.

The lack of other areas of natural vegetation through this section makes the wall vegetation an important element of the biodiversity of the river corridor.

## Recreation and Amenity Value

Whilst the predominant aim of this survey was to establish the ecological value of habitats for local wildlife, it should also be noted that the canal and river corridor are of significant value to the people in the local community. Access to these green spaces makes an important contribution to quality of life. Access to green spaces is also important for education and appreciation of wildlife in future generations (English Nature Research Report No. 256).



# Appendix 1

## Invasive Alien Plant Species

Invasive alien species are found throughout the study area: Himalayan Balsam (*Impatiens glandulifera*), Giant Hogweed (*Heracleum mantegazzianum*) and Japanese Knotweed (*Fallopia japonica*). These plants are problematic as they form dense swathes reducing biodiversity by out-competing native plants. Water acts as the main dispersal agent, hence their dominance in the riparian environment. Disturbance by flooding or during development and construction, in particular the clearance of bank-side vegetation to bare soil, facilitates their spread, hence this area is significantly affected (de Waal, 1994).



The canal and river habitats surveyed are markedly different. The controlled levels and slow flows of the canal habitat replicate that of a linear series of ponds and provide a refuge for pond species (see Briggs, 1996). However vegetation adjoining the canals is more 'managed' in character than river bank vegetation with generally a greater extent of improved grasslands along their length. British Waterways has limited the spread of alien species in the canal environment through mechanical and chemical management. However, the close proximity of river located stands of these species and the disturbance caused by development upstream means they still pose a threat to canal vegetation.

# Recommendations

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The data should be transferred to the local biological record centre - West Yorkshire Ecology.

This document should link to a wider corridor outside the Waterfront Area.

The data set should be kept updated as the area is changing rapidly.

Ecological surveys relating to development should be compatible with the methodology described in this report.

Table 1

# Established Survey Methodologies Reviewed for Application to this Study

Name of Technique	Acronym	Focus	Reason for Rejection
National Vegetation Classification	NVC	Classification system based on dominant vegetation types found throughout Britain	Too general. Would not highlight the real value of remaining River corridor habitat, in particular the local importance.
River Landscape Assessment	RLA	Broad landscape evaluation of river corridor	Lack of floral and faunal detail, meaning the methodology is too broad for this study. Landscape focus rather than ecological data.
River Habitat Survey	RHS	River Channel and adjacent habitat	Not suitable for canal habitats. Too focussed on natural channels rather than engineered channels. Lack of floristic and faunal detail Scale too broad (500m)
River Corridor Survey	RCS	River Channel and adjacent habitat	Lack of floristic and faunal detail. Too time consuming for application to the whole study area.

Table 2

# Description of Habitat Categories and Examples (not-exhaustive) of Representative Flora and Fauna

Habitat Category	Description	Recorded Flora	Recorded Fauna	Expected Associated Fauna
Improved grassland	Mown grasslands, typically towpath fringes	Perennial ryegrass, Annual meadow-grass, Red/White Clover, Ribwort plantain and Yarrow	Greenfinch, Magpie, Short turf probers, Song thrush, Starling Common Shrew	Favoured for feeding by Starlings and some duck and thrush species  Insects including hoverflies, small tortoiseshell  Small mammal habitat including shrews and rabbits
Amenity planting	Individual trees and shrubs planted as part of an ornamental scheme	Ornamental shrub species such as Cotoneaster, Berberis, Lonicera and Pyracanthus. Occasional ornamental tree species such as Betula and Sorbus	Blackbird	Roosting and nesting cover for small birds such as Dunnock, Robin and Wren  The planting also provides winter food in the form of berries for birds such as Mistle thrush, Song thrush and Waxwing
Wall vegetation	Vegetation growing from masonry walls	Wall rue, Male fern and Hearts-tongue fern Ivy-leaved toadflax woody vegetation such as Alder and Sycamore and aggressive weed species such as Ragwort and Rose-bay willowherb	Damselflies, dragonflies butterfly (red admiral) and wasp activity  Grey wagtail, Wren, Moorhen, Mallard	Grey wagtail, nesting area for Wren and Blue tit.  Wall cavities suitable for overwintering butterfly spp  Under bridges and derelict buildings etc suitable for use as refuges by bats, otter, fox and mink

**Table 2**

Habitat Category	Description	Recorded Flora	Recorded Fauna	Expected Associated Fauna
Scrub	Low woody species, young saplings	Hawthorn, Sycamore, Bramble, Wild raspberry, Nettle and Rose-bay willowherb	<p>Otter, mink</p> <p>Butterflies including, Red admiral, Common tortoiseshell, Peacock, Small tortoiseshell, Green-veined white.</p> <p>Dragonflies, damselfly, bees and wasps, Devil's coach- horse beetle.</p> <p>Grey wagtail, Mistle thrush, Kingfisher, Mallard, Wren, Black-headed gull, Common tern, Swift, Chiff-chaff, Whitethroat, House Martin, Cormorant, Coot, Swallow.</p>	<p>Nesting and roosting habitat for birds such as Bullfinch, Long-tailed tit, Dunnock and Robin.</p> <p>Feeding area for predatory birds such as Kestrel and Sparrowhawk and for bat spp.</p> <p>Food and cover for small mammals, including shrew and vole species, wood mouse and hedgehog. Also provides refuge and feeding areas for larger predators such as foxes, mink and otter.</p> <p>Bats</p>
Pontoon	Large wooden structures 12 metres by 2 metres provide mooring opportunities for narrow boats	The location of the pontoons provides a refuge for some aquatic plant species that require slow flowing water conditions between the bank and the structure such as Potomagetons spp. and Callitriche spp.	<p>Preening and roosting locations for gulls and ducks.</p> <p>Otter as haul out, feeding and territory marking sites.</p>	

Table 2

Habitat Category	Description	Recorded Flora	Recorded Fauna	Expected Associated Fauna
Tree-lined banks/ woodland strips	Tree fringes lining waterfronts. Typically not more than 10 metres in breadth	Alder, Crack willow, White willow, Goat willow, Elder and Sycamore	Woodmice and Field voles, Otter haul out, Grey squirrel, Mink, Badger Setts.  Kingfisher, Great tit, Blue tit, Longtailed tit, Warblers, Magpie, Carrion crow, Moorhen, Mistle thrush, Blackbird, Cormorant, Mallard, Dipper, Black-headed gull, Wren, Blackcap, Coal tit, Willow warbler, Song thrush, White throat, Sandpiper, Mute swan, Heron, Great spotted woodpecker, House martin, Chiff-chaff.  Red admiral, Painted lady, Common blue, Cabbage white, Peacock, Bumblebee, Green-veined white	Refuge for fox
Aquatic/Marginal Vegetation	Aquatic vegetation within channel itself and marginal vegetation growing in silty marginal areas	Reed-canary grass, Reed-sweet grass and Himalayan balsam Arrowhead, Broad-leaved pondweeds, Canadian waterweed and Duckweeds as well as Gipsywort and species of Sedge and Rush	Birds feeding and preening including Mallard and Moorhen, Grey wagtail, Pied wagtails, Blackcap, Blackbird, Common tern, House sparrow, Mute swan, Housemartin  Dragonfly, Damselfly, Pond-skater, Bumblebees, Red Admiral, Small tortoiseshell  Fish fry  Water vole seen feeding on marginal vegetation in backwater on River Aire.	

**Table2**

Habitat Category	Description	Recorded Flora	Recorded Fauna	Expected Associated Fauna
Rank grassland	Nutrient rich grassland	Cocksfoot, Yorkshire fog and False-oat grass with some species of Dock and Ragwort also present	<p>Meadow brown, Peacock, Red admiral and Small tortoiseshell, Painted lady, Gatekeeper, Common blue, Cabbage white, Cinnabar moth</p> <p>Wasp activity and dug up nest, Honeybee, Bumblebee,</p> <p>Brown Rat</p> <p>Grey wagtail, Great tit, Blue tit, Heron, White throat, Blackbird, Magpie, Common tern, Mute swan, House martin, Grebe, Black-headed gull, Bullfinch, Chiff-chaff</p>	<p>Provides hunting area for predators, including owl and kestrel</p> <p>Key area for butterflies to feed and lay eggs</p> <p>Good habitat for other insects including bees and wasps</p> <p>Valuable for small mammals to breed and lie-up in</p>

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Full details of the Biodiversity and Waterfront Development SPD including the Sustainability Appraisal, Representations Statement and Adoption Statement are available to download in pdf format on the City Council's website [www.leeds.gov.uk/ldf](http://www.leeds.gov.uk/ldf)

In line with the Government's aim to extend accessibility to public sector services via the internet and E-government emphasis has been placed on making the necessary documents and maps available electronically. However, it is recognised that this means of access will not be appropriate for everybody. Alternatively you can obtain paper copies of the documents if you request them from:-

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2 Rossington Street  
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**Telephone: 0113 247 8000**  
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Email: [ldf@leeds.gov.uk](mailto:ldf@leeds.gov.uk)

Seeking Independent Advice and Support  
Planning Aid provides free, independent and professional advice on planning issues to community groups and individuals who cannot afford to pay a planning consultant.

Yorkshire Planning Aid also provides a programme of community planning, training and education activities.  
To contact Planning Aid's national office:-

**National Planning Aid Unit,**  
Unit 419, The Custard Factory,  
Gibb Street, Birmingham, B9 4AA

**Telephone/Fax: 0121 693 1201**  
Email: [info@planningaid.rtpi.org.uk](mailto:info@planningaid.rtpi.org.uk)  
Website: [www.rtpi.org.uk](http://www.rtpi.org.uk)

**To contact the Yorkshire and Humber office:-**  
Case Worker :Alyson Linnegar  
(available Tuesday, Wednesday & Friday)

**Telephone: 0870 850 9808**  
Email: [ykcw@planningaid.rtpi.org.uk](mailto:ykcw@planningaid.rtpi.org.uk)

If you do not speak English and need help in understanding this document, please phone: **0113 247 8092** and state the name of your language. We will then put you on hold while we contact an interpreter. This is a free service and we can assist with 100+ languages. We can also provide this document in audio or braille on request

यदि आपनि इंग्लिशमें कथा बलते ना पारैन एवं एई दलिलीटि बुबते पारार जन्य साथाय्यर दरकार हय, तहले दया करे 0113 24 78092 एई नहुरे फोन करे आपनार जायटिर नाम बलून। आमरा उचन आपनाके लाइने थाकते बले फोन बोचषीर (इंटरप्रीटर) साथे योगायोग करब।

凡不曉英語又須協助解釋這份資料者，請致電 0113 24 78092 並說明本身所需語言的名稱。當我們聯絡傳譯員時，請勿掛斷電話。

यदि आप इंग्लिश नहीं बोलते हैं और इस दस्तावेज को समझने में आपको मदद की जरूरत है, तो कृपया 0113 24 78092 पर फोन करें और अपनी भाषा का नाम बताएँ। तब हम आपको होल्ड पर रखेंगे (आपको फोन पर कुछ देर के लिए इंतजार करना होगा) और उस दौरान हम किसी इंटरप्रेटर (बुभाषिए) से संपर्क करेंगे।

ਅਗਰ ਤੁਸੀਂ ਅੰਗਰੇਜ਼ੀ ਨਹੀਂ ਬੋਲਦੇ ਅਤੇ ਇਹ ਲੇਖ ਪੱਤਰ ਸਮਝਣ ਲਈ ਤੁਹਾਨੂੰ ਸਹਾਇਤਾ ਦੀ ਲੋੜ ਹੈ, ਤਾਂ ਕਿਰਪਾ ਕਰ ਕੇ 0113 24 78092 'ਤੇ ਟੈਲੀਫ਼ੋਨ ਕਰੋ ਅਤੇ ਅਪਣੀ ਭਾਸ਼ਾ ਦਾ ਨਾਮ ਦੱਸੋ। ਅਸੀਂ ਤੁਹਾਨੂੰ ਟੈਲੀਫ਼ੋਨ 'ਤੇ ਹੀ ਰਹਿਣ ਲਈ ਕਹਾਂਗੇ, ਜਦ ਤਕ ਅਸੀਂ ਦੁਬਾਸ਼ੀਏ (Interpreter) ਨਾਲ ਸੰਪਰਕ ਬਣਾਵਾਂਗੇ।

اگر آپ انگریزی نہیں بولتے ہیں اور آپ کو یہ دستاویز سمجھنے کیلئے مدد کی ضرورت ہے تو براہ مہربانی اس نمبر 0113 24 78092 پر فون کریں اور میں اس کے بعد تم کو ان پر ہی انتظار کرنے کیلئے کہیں گے اور خود ترجمان (انٹریپرٹیر) سے رابطہ کریں گے۔





Leeds  
CITY COUNCIL

# Biodiversity and Waterfront Development

Leeds Local Development Framework

Supplementary Planning Document  
December 2006