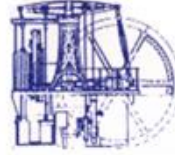




Witham First District



Upper Witham



Witham Third District



North East Lindsey



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Witham and Humber Drainage Boards

Nature Strategy

2021-2026



1. Statement

This Nature Strategy has been prepared by Witham and Humber Drainage Boards in accordance with the commitment in the Implementation Plan of the Defra Internal Drainage Board Review of 2007 for Internal Drainage Boards (IDBs) to produce their own strategy documents. It demonstrates the 4 Boards' commitment to fulfilling their duty as public bodies to conserve and enhance biodiversity under various legislation and policy including, but not limited to, the Environment Bill (Act) 2020, the Natural Environment and Rural Communities Act 2006, the 25 Year Environment Plan and the Water Framework Directive.

Importantly, it reflects the 4 Boards' aspiration to maximise the support provided to biodiversity, particularly priority UK species and habitats, and the wider environment in general through day-to-day activities, by setting clear objectives, actions and targets.

The 4 Boards have adopted this Nature Strategy as one of their policies and are committed to its implementation. The Boards will review the plan periodically, with a review period no greater than 3 years, and update it as appropriate.

November 2021

This Nature Strategy is a public statement by the 4 Boards of their biodiversity objectives and the methods by which they intend to achieve them.

We would welcome appropriate involvement in the delivery of the Strategy from interested organisations, companies, and individuals.

You can contact us about this Nature Strategy by writing to the following address:

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Further information is available on the 4 Boards' website: **www.witham3idb.gov.uk**



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2. Introduction

2.1. What is Biodiversity and why is it important?

Biodiversity can be defined simply as “the variety of life” and encompasses the whole spectrum of living organisms, including plants, birds, mammals and insects. It includes both common and rare species, as well as the genetic diversity within species. Biodiversity also refers to the habitats and ecosystems that support these species.

Biodiversity is part of our natural capital, a vital resource providing:

- Supply of ecosystem services including water, nutrients, climate change mitigation, flood mitigation, carbon storage and pollination.
- Life resources including food, medicine, energy and raw materials.
- Improved health and well-being.
- Landscape and cultural distinctiveness.
- Direct economic benefits from biodiversity resources and ‘added value’ through local economic activity and tourism.
- Educational, recreational and amenity resources.

This Nature Strategy is part of a much larger biodiversity framework that encompasses international, national and local levels of legislation and policy and which also include ecosystem services and climate change.

2.2. Legislative Background

When carrying out its functions, an IDB must pay regard to the effect on the environment. Some environmental legislation relates specifically to maintaining or restoring the condition of protected sites or protecting certain species, but there are also statutory duties for IDBs to conserve and enhance biodiversity in and alongside the watercourses they manage and the wider landscape.

The Natural Environment and Rural Communities Act 2006 places a duty on IDBs to conserve biodiversity. The Environment Bill (Act) 2020, when enacted, extends this duty on IDBs to also enhance biodiversity and report periodically on its actions. Therefore, as a public authority, every IDB must consider what action it can take, consistently with the proper exercise of its functions, to further the conservation and enhancement of biodiversity in England.

Below is a list of key environmental legislation (by no means an exhaustive list) relevant to the work of IDBs:

- The Environment Bill (Act) 2020
- Conservation of Habitats and Species Regulations 2017
- Eels (England and Wales) Regulations 2009



- Water Environment (Water Framework Directive) (England and Wales) Regulations 2003
- Natural Environment and Rural Communities Act 2006 (Section 40)
- Environmental Impact Assessment (Land Drainage Improvement Works) Regulations 1999
- Land Drainage Act 1994
- Wildlife and Countryside Act 1981 (as amended)
- The Countryside and Rights of Way Act 2000
- The Protection of Badgers Act 1992
- Flood and Water Management Act 2010
- Salmon and Freshwater Fisheries Act 1975

2.3. Policy & Strategic Background

In 1992 at the United Nations Conference on the Environment and Development, commonly known as the Rio Earth Summit, the UK signed the Convention on Biological Diversity which pledged its commitment to contribute towards halting the worldwide loss of habitats and species and their genetic resources. At the 2010 biodiversity summit in Nagoya, Japan, the UK re-affirmed this commitment, and the “Biodiversity 2020” white paper was developed setting out how those commitments would be put into action.

The 2010 report by Sir John Lawton “Making Space for Nature” set out that ecological networks were required in order to halt and reverse the declines seen in many threatened species and habitats. The report succinctly made clear that these ecological networks needed to be bigger, more frequent, better in quality, and more joined up in order to be successful in their ambitions.

The concept of Nature Recovery Networks featured in the Government’s Biodiversity 2020 strategy (2011) and 25 Year Environment Plan (2018). The Environment Bill (Act) 2020 and the development of Local Nature Recovery Strategies (LNRS) expands this concept by also consider the value of the ecological services provided by non-priority species and habitats such as the carbon sequestration of wetlands, the flood alleviation of tree-planting in the uplands and the wellbeing benefits brought about by green space. As such, this Nature Strategy presents the actions planned by the IDB to support both priority and non-priority species.

International reports such as by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) have found that climate change in particular is one of the biggest threats to our biodiversity now, and in the future. Supporting the continuity, connectivity and quality of habitat through management, restoration and expansion may help even the less mobile species to adapt more easily to climate change. This Nature Strategy presents the actions the IDB can take to support climate resilience for biodiversity.

2.4. Purpose

This Nature Strategy has been produced to demonstrate how the IDB fulfils its legal obligations to



conserve and enhance biodiversity and sets out targets and actions that contribute to local, national and international strategies and policies.

While the IDB has a statutory duty to have regard for the environment whilst carrying out their functions, for example on or within drainage assets such as watercourses and their banks, the IDB has also to consider how it can contribute to the enhancement of the wider environment.

It is not within the scope of this document to set out the IDBs' objectives and actions in relation to wider environmental topics, such as reducing carbon emissions or reducing waste. However, strategies to address such topics may be mentioned in connection to the enhancement of habitats and species, such as peatland restoration and carbon sequestration.

The opportunity to work together to support and enhance biodiversity in partnership with other organisations is sought wherever possible, as the IDB recognises the additional value partnership working in such ways can bring to the overall objectives.

The intention is that biodiversity is fully integrated into the 4 Boards' activities, policies and procedures such as annual maintenance programmes, capital works projects, training and communications.

2.5. Vision

The 4 IDBs' vision is:

A drainage district where thriving wildlife is an integral part of delivering efficient and effective water-level management and reduced flood risk.

2.6. Aims

The aims of this Nature Strategy are:

- To ensure that opportunities for conservation and enhancement of biodiversity are fully considered throughout the IDB's operations, as required by the Natural Environment and Rural Communities Act (2006);
- To enable more effective monitoring and reporting of progress and outcomes.
- To ensure that Priority species and habitats receive effective action within defined targets within the drainage district.
- To identify targets and appropriate actions for other habitats and species of local importance within the drainage district. This includes invasive non- native species.
- To contribute to local environmental partnerships such as the Local Nature Partnership to ensure that programmes and priorities for biodiversity conservation are aligned and maintained in the long term.
- To raise awareness within the IDB and locally of the need for biodiversity conservation, and to communicate with the local and wider community what actions the IDB are undertaking to support biodiversity.



3. The IDB Nature Strategy Process

3.1. The Biodiversity Audit

The Boards have each conducted a biodiversity audit of their drainage districts and identified those habitats and species that would benefit from particular management or actions by the IDB.

This Nature Strategy focuses on nationally important priority habitats and species, those that have been deemed of 'principal importance' in England under the NERC Act 2006. However, those that are not priority species or habitats, but may be locally significant for a variety of reasons have also been considered. Invasive non-native species have also been included.

The information gathered, which is presented in later sections, has been used to develop this Strategy.

3.2. Objectives, Targets and Actions

For each relevant habitat and species, conservation objectives have been identified. The action plan then details individual actions required to achieve the objectives, and associated monitoring and reporting of progress and impact.

For this document to be as effective as possible the targets and actions have been devised to be SMART (Specific, Measurable, Achievable, Relevant and Time-limited).

Procedural targets and actions have also been considered allowing the Board to measure the way in which it considers and incorporates biodiversity across the whole range of its operations. These may involve changes to administrative, management and operating procedures.

3.3. Monitoring and Reporting

Monitoring is the on-going process of regularly collecting and analysing relevant information to make sure the actions within the Plan are positively contributing towards the targets and to capture any additional benefit achieved. The Plan sets out how and when this monitoring will take place for example, to regularly review the progress of actions against the plan at Board meetings throughout the life of the plan.

The frequency and type of information reported is also defined by the Plan and includes the publication of progress reports in the public domain via each IDB's website and in accordance with the duty set out in the Environment (Bill) Act 2020.

The plan will be updated at least every 5 years but as this is a dynamic document it may change more frequently. For example, in the light of routine monitoring, changes may be necessary to ensure an objective can be met.



4. The Upper Witham IDB Biodiversity Audit

4.1 Upper Witham Internal Drainage District

The drainage district is generally located on the west side of Lincoln, upstream of High Bridge. It extends as a network of narrow areas of land as far as Gainsborough to the north, as far as Newark to the south-west, and as far as South Witham to the south.

The Board's District to the west of Lincoln, and to the north-west of the city as far as Gainsborough, follows the catchments of the River Till and Cricket Till, as of the Fosdyke Canal. The Board maintained watercourses in these areas are the upper reaches and tributaries of these larger channels, as well as being large-sized watercourses, such as the Catchwater Drain and the Oxpasture Drain. Settlements in and adjacent to this part of the Board's District are Upton and Willingham-by-Stow in the north; Saxilby, Skellingthorpe and North Scarle in the west.

Closer to the city the Board's area includes the Pike Drain through Whisby Nature Park. South of Lincoln, the Board maintained watercourses are found as the upper reaches and tributaries of the River Brant and River Witham in the vicinity of North Hykeham, Bassingham, Brant Broughton, Long Bennington and Grantham.

The most remote Board maintained watercourse is at South Witham which is approximately 15km south of Grantham. There are several "islands" of high ground which punctuate and are excluded from the Board's District.

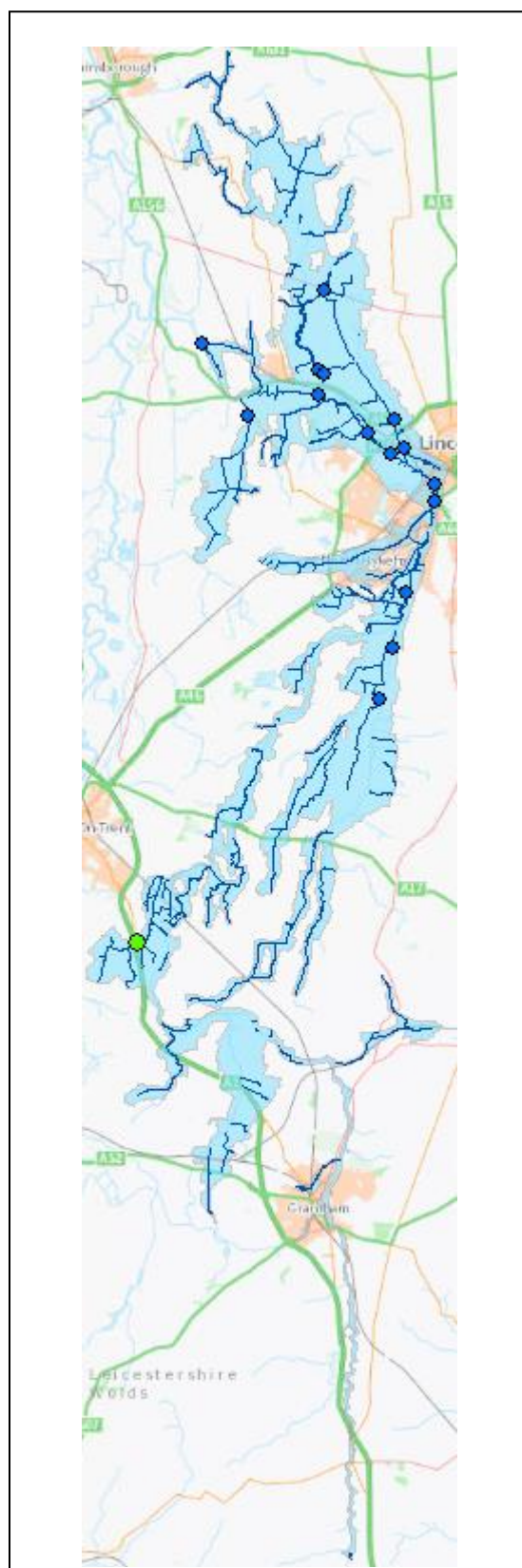
The following outlines the key details of the district:

- Total area of the drainage district: **21,100 ha**
- Area of agricultural land: **18,490 ha**
- Area of other (non-agricultural) land: **2,610 ha**
- Watercourses (maintained): **324 km**
- Pumping Stations: **15**



4.2 Map of Audit Area (Drainage District)

The area covered by the drainage district of the IDB is shown below.





4.3. Geology

The geology of the Board's area is mixed, with alluvium, limestones, clays, boulder clay and sand with gravel solid and drift geologies all present. Deep underlying deposits of oil, coal and gas occur within the Board's area.

4.4. Landscape Character

Natural England has divided the whole of England into several National Character Areas (NCA) based on characteristic landforms, wildlife and land use. For each NCA, there is a prepared profile that characterises the wildlife and natural features, identifies the influences that act upon those features and sets objectives for nature conservation.

The majority of the Board's District lies within the Trent & Belvoir Vales character area. The exception is the part which lies south of Grantham, which is within the Kesteven Upland character area.

4.5. Landscape Designations

There are no National Parks or Areas of Outstanding Natural Beauty (AONB) in the Drainage District

4.6. Sites and Monuments

Scheduled Ancient Monuments are not directly related to Nature and Biodiversity matters. Information held by the Board and other sources has therefore not been collated. Monuments are only relevant in cases where they abut the Board maintained watercourses and such monuments would be referred to on a site-by-site basis as appropriate.

4.7. Tree Preservation Orders

Tree Preservation Orders (TPOs) are not directly related to Nature and Biodiversity matter since they are made on individual trees, groups or woods for landscape and amenity reasons. Information held by the Board and other sources has therefore not been collated. Orders are only relevant where they occur adjacent to the Board maintained watercourses and would be referred to on a site-by-site basis as appropriate.



4.8. Statutory Nature Conservation Sites

4.8.1 Internationally Designated Sites

There are no internationally designated nature conservation sites within the District.

4.8.2 Nationally Designated Sites

The following nationally-designated conservation sites, relevant to water level management and/or maintenance activities of the IDB, are found within the drainage district.

Site name	Designation	Component of an International Site	Features Relevant to IDB
Allington Meadows	SSSI	No	<ul style="list-style-type: none"> Unimproved neutral grassland

4.8.3 Local Nature Reserves

The following Local Nature Reserves are relevant to the activities of the IDB are found within the drainage district.

Site name	Designation	Features Relevant to IDB
Whisby Nature Park	Local Nature Reserve (LNR)	<ul style="list-style-type: none"> Open water Aquatic and marginal vegetation Marshes Bogs Invertebrates Breeding and wintering waterbirds
Swanholme Lakes	LNR (also SSSI)	<ul style="list-style-type: none"> Open water Aquatic and marginal vegetation Marshes Bogs Invertebrates

4.8.4 Non-statutory Nature Conservation Sites

A number of sites have been identified locally as being important for wildlife. Whilst these designations do not have statutory status, the sites are important for their contribution to biodiversity and planning policy requires that they are given consideration by the LPA in forming any decision. The following Local Wildlife Sites are to be found within or close to the drainage district.



Site name	Designation	Features Relevant to IDB
LINCOLNSHIRE SITES		
Upton Grange Road Verges	LWS	Road verge / green lane / path
Willingham to Fillingham Road Verges	LWS	Road verge / green lane / path
Old Wood, Skellingthorpe	LWS	Woodland / plantation
Skellingthorpe Big Wood - Old Wood House	LWS	Woodland / plantation
Burton Gravel Pits	LWS	Lake / pond / reservoir / Pit
Foal Close East	LWS	Woodland / plantation
Witham Valley South Drain	LWS	Drain / river / canal / stream / ditch / spring
Witham Leas	LWS	Woodland / plantation
Witham Marshes	LWS	Field / pasture / grassland
Spike Island	LWS	Woodland / plantation
West Common	LWS	Field / pasture / grassland
Swan Pool	LWS	Woodland / plantation
Witham Corridor, South of Bracebridge	LWS	Drain / river / canal / stream / ditch / spring
Witham Corridor, North of Bracebridge	LWS	Drain / river / canal / stream / ditch / spring
South Witham Marshes	LWS	Field / pasture / grassland
Pyewipe Junction	LWS	Woodland / plantation
Old Decoy, Skellingthorpe	LWS	Woodland / plantation
Bishop's Bridge to Fosdyke Main Drain	LWS	Drain / river / canal / stream / ditch / spring
Boultham Main Drain	LWS	Drain / river / canal / stream / ditch / spring
Boultham Mere	LWS	Lake / pond / reservoir / pit
Boultham Park	LWS	Woodland / plantation
Brayford Pool	LWS	Lake / pond / reservoir / pit
Catchwater Drain, Lincoln	LWS	Drain / river / canal / stream / ditch / spring
Fosdyke Delph	LWS	Drain / river / canal / stream / ditch / spring
Fosdyke Navigation, Pyewipe Inn to Brayford Pool	LWS	Drain / river / canal / stream / ditch / spring
Great Gowts Drain	LWS	Drain / river / canal / stream / ditch / spring
Newark Road to River Witham Drain	LWS	Drain / river / canal / stream / ditch / spring
Hykeham Railway Line, Whisby Nature Park	LWS	Brownfield / ruderal / previously developed / disused railway
Hykeham Railway Line, East	LWS	Brownfield / ruderal / previously developed / disused railway
Teal's Lake, Whisby Pits Complex	LWS	Lake / pond / reservoir / pit
Mr Nevile's Pits East, Whisby Pits Complex	LWS	Lake / pond / reservoir / pit
Mr Nevile's Pits West, Whisby Pits Complex	LWS	Lake / pond / reservoir / pit
Ski World, Whisby Pits Complex	LWS	Lake / pond / reservoir / pit
North Hykeham Gravel Pit	LWS	Lake / pond / reservoir / pit



Richmond Lakes	LWS	Lake / pond / reservoir / pit
Whisby Nature Park, Whisby Pits Complex	LWS	Lake / pond / reservoir / pit
North Hykeham Hayfield	LWS	Field / pasture / grassland
Brant Plantation	LWS	Woodland / plantation
Brant Washlands	LWS	Field / pasture / grassland
River Witham, Bracebridge to South Hykeham	LWS	Drain / river / canal / stream / ditch / spring
North Hykeham Meadows	LWS	Field / pasture / grassland
River Witham, Aubourn to Beckingham	LWS	Drain / river / canal / stream / ditch / spring
Carlton le Moorland Grassland	LWS	Field / pasture / grassland
Beckingham Highway Trust Fields	LWS	Field / pasture / grassland
River Brant	LWS	Drain / river / canal / stream / ditch / spring
Beckingham Ranges	LWS	Field / pasture / grassland
River Witham, Long Benington	LWS	Drain / river / canal / stream / ditch / spring
River Witham, Marston to Belton	LWS	Drain / river / canal / stream / ditch / spring
Marston Grassland and Marsh	LWS	Field / pasture / grassland
Queen Elizabeth Park	LWS	Field / pasture / grassland
River Witham, Queen Elizabeth Park	LWS	Drain / river / canal / stream / ditch / spring
Belton Park and Golf Course	LWS	Parkland / wood pasture
Stoke Rochford Pumping Station	LWS	Field / pasture / grassland
Great Ponton A1 Road Verges	LWS	Road verge / green lane / path
Easton Lane Verges	LWS	Road verge / green lane / path
River Witham, Little Ponton	LWS	Drain / river / canal / stream / ditch / spring
Saltersford Valley	LWS	Field / pasture / grassland
Little Ponton Grassland	LWS	Field / pasture / grassland
Grange Farm Pasture	LWS	Field / pasture / grassland
Great Ponton Marsh	LWS	Field / pasture / grassland
Stoke Rochford Grassland	LWS	Field / pasture / grassland
River Witham, Great Ponton to Easton Park	LWS	Drain / river / canal / stream / ditch / spring
NOTTINGHAMSHIRE SITES		
Cotham Station	SINC	'Species-rich calcareous grassland and scrub developed on an ex-industrial site'
Staunton Quarry	SINC	'A valuable area of wetland, grassland and scrub communities on base-rich soils - of botanical and invertebrate zoological interest'
Langford Moor Area	SINC	'Valuable plant and animal communities along rides and in drainage ditches throughout this coniferous forestry plantation'
Railway Pond, Balderton	SINC	'Important scrub and open water habitats developed on a long disused ballast pit'
Shire Dyke, Balderton	SINC	'A representative stretch of a species-rich drain'
North Harby Verge	SINC	'A species-rich roadside verge, cut for hay'
The Ring, Thorney	SINC	A narrow strip of ancient deciduous woodland on



		sandy soil, bordered by a species-rich drain
Thorney Drain	SINC	A shallow field drain in an arable area with notable emergent vegetation and bank-side grassland
Drinsey Nook Lane Drain, Thorney	SINC	A shallow, slow flowing drain with a notable aquatic flora
Gibbet Wood, Thorney	SINC	A partly cleared, sand-land deciduous woodland with a noteworthy flora
Shire Dyke, Barnby	SINC	Drain with noteworthy aquatic, swamp and bankside vegetation
Cowtham House Arable	SINC	Notable 'arable weeds' along a field margin
Shire Dyke, Balderton South	SINC	County boundary drain of notable botanical and zoological importance
Balderton Ballast Pit	SINC	A long established ballast pit with a noteworthy aquatic and bank-side flora
Ox Pasture Drain	SINC	A broad drainage channel with an outstanding array of aquatic species
Barnby Manor Farm Drain	SINC	A field drain noteworthy for Water Beetles
Wigsley Drain	SINC	A drain of interest for Water Beetles
Plot Wood	SINC	A characteristic sand-land woodland
Mineral Line, Cotham	SINC	'Scrub and base-rich grassland along a disused railway line'
Witham Pastures	SINC	'A sequence of damp grasslands on alluvial soils'
Wigsley Airfield Pool	SINC	'A notable aquatic community in and around a pond of recent origin'
Wigsley Park Wood	SINC	'A typical open woodland of light freely-draining soils'
Wigsley Park Wood	SINC	'An historical wood that retains both faunal and floral interest'
Wigsley Wood	SINC	A mosaic of diverse habitats on an abandoned airfield
Wigsley Dismantled Airfield	SINC	A floodbank with notable open grassland communities
Witham Bank, Barnby	SINC	A section of the River Witham of interest for Water Beetles
River Witham	SINC	A long length of dismantled railway line with a rich diversity of characteristic and notable herbs
Fledborough to Harby Dismantled Railway	SINC	'A good mixed habitat association of acidic grassland, heath and deciduous woodland'
Newark Golf Course	SINC	A shallow drain with a notable aquatic flora bordering an open acidic woodland
Crow Wood Drain	SINC	Marshy grassland
Sleaford Road Grassland	SINC	A site supporting a butterfly species of principle importance
Cottam Restored Landfill	SINC	Notable grassland and species on a gypsum spoil heap
Ayer's Rock, Cotham	SINC	A drain of interest for Water Beetles
Shire Dyke Tributary Drain	SINC	'Species-rich calcareous grassland and scrub developed on an ex-industrial site'



4.9. Habitat Audit Summary

This habitat audit summary lists the UK priority habitats that occur within the drainage district and are identified as likely to be influenced by the Board’s activities. Also listed are habitats deemed to be of local importance and/or featured in local nature strategies that occur in the drainage district. Finally, brief notes are included on the potential for the IDB to maintain, restore or expand its important habitats.

National Priority Habitat	National Status & Extent	Local Priority Habitat	Habitat of Importance for IDB	Extent, status and Location of Habitat of Importance within drainage district	IDB Potential for Maintaining, Restoring or Expanding Habitat (high/medium/low)
Fen, marsh & swamp	Approximately 5,000ha of reed beds in the UK	Fens & wet reedbeds	Reedbed	Isolated open water bodies. Extensive reed margins on some watercourses.	Potential to expand reedbed habitat by extending existing margins
Broadleaved, mixed and yew woodland	Approximately 50,000-70,000 hectares	Wet woodland	Wet woodland	Marginal to isolated open water bodies	Very limited potential to expand this habitat by extending existing areas
Rivers and streams & Standing open water and canals	Up to 300,000 hectares total	Rivers, canals and drains	Watercourses	All of the Board maintained watercourses with permanent water	Potential to restore permanent water to dry or only seasonally wet watercourses, and to create new watercourses to offset loss to culverting
Coastal and Floodplain Grazing Marsh	Up to 300,000 hectares	Grazing Marsh	Flood Meadow & Washland	Stapleford Ranges, and possibly Thurlby and a few other places	Very limited potential to expand this habitat by extending existing areas
Hedgerows	Widespread	Hedgerows	Hedgerows	Throughout the Board area	Survey and monitor to assess and maintain the resource of this habitat



4.10. Species Audit Summary

This species audit summary will include priority and other species including INNS that occur within the drainage district and are identified as likely to be influenced by the Board’s activities. Also listed are species deemed to be of local importance and/or identified by local nature strategies. Finally, brief notes are included on the potential for the IDB to improve the status of the species in the drainage district.

Common & scientific name	National Status	Local Status	Location of Species of Importance within drainage district	IDB Potential for Maintaining or Increasing Species Population or Range (High/medium/low)
Water Vole <i>Arvicola terrestris</i>	S41 Priority Species	Present throughout Lincolnshire. Populations threatened by increasing mink populations	Probably throughout the Board District with the exception of smaller headwaters	Maintain and, where appropriate, extend the area of suitable water vole habitat. Maintain in such a way that promotes and enhances water vole
Otter <i>Lutra lutra</i>	S41 Priority Species, protected under W&C Act 1981	Present throughout Lincolnshire. Populations threatened by habitat destruction and persecution.	Scattered through the District. Often seen close to E.A. main rivers such as the Witham.	Ensure that riparian habitat has sufficient bankside vegetation and undisturbed terrestrial cover to provide resting and breeding sites for otters.
Eel <i>Anguilla anguilla</i>	S41 Priority Species, IUCN Critically Endangered	Common throughout the Board District.	Throughout the Board area.	Establish baseline data and consider installing eel friendly pumps where possible
Toad <i>Bufo bufo</i>	S41 Priority Species	Likely very common, although current records are scattered	Likely common, although current records are scattered	Establish baseline data
Reed bunting <i>Emberiza</i>	S41 Priority Species	Widespread	Widespread, often seen on watercourses with extensive reed bed	Maintain and, where appropriate, extend the area of suitable reed



<i>schoeniclus schoeniclus</i>				bunting habitat.
Barn owl <i>Tyto alba</i>	S41 Priority Species	Lincolnshire has one of the highest densities of barn owls of any county in the country thanks to the work of local drainage authorities, and farmers and landowners who manage grassland edges, drains and field boundaries to benefit the field vole and put up nesting boxes.	Widespread, particularly within low lying farmland areas	Maintain nest boxes and install new sites where appropriate
Grass Snake <i>Natrix natrix</i>	S41 Priority Species	Common	Channels and their banks, including drying out weed rakings.	Maintenance of suitable habitat, install weed baskets where appropriate
Bats <i>Chiroptera spp.</i>	S41 Priority Species	Widespread	Trees, near channels and possibly buildings	Creation of artificial roost sites where appropriate
White clawed crayfish <i>Austropotamo- bius pallipes</i>	S41 Priority Species	Common	More common in the northern section of the District	Establish baseline data



4.11. Invasive Non-native Species Summary

The IDB has identified the following high risk aquatic and riparian invasive non-native species within the drainage district that are identified as likely to be influenced by, or impact upon the Board’s activities.

Common & scientific name	Location within IDB if known	Year first recorded	Local status / Extent within drainage district	IDB potential for controlling species population or range
Floating pennywort <i>Hydrocotyle ranunculoides</i>	Watercourses around Lincoln City, mainly.	2010	Can be seen near the Fosdyke during summer months, but not extensive within District	IDB management plan and control measures, and partnership working.
<i>Azolla spp.</i>	Widespread on most channels during summer months	2000’s	Widespread on most channels during summer months	IDB management plan and control measures, and partnership working.
New Zealand pygmyweed <i>Crassula helmsii</i>	Common. Easily confused with <i>Azolla spp.</i>	2010	Common within urban areas	IDB management plan and control measures, and partnership working.



4.12. Water Level Management Plans

Water Level Management Plans (WLMPs) provide a means by which the water level requirements for a range of activities in a particular area, including agriculture, flood defense and conservation, can be balanced and integrated. Guidance for the production of WLMPs by the operating authorities for sites of conservation interest was produced by MAFF/ Defra in 1992, 1999 and 2004. This guidance concentrated on SSSIs, especially those of international importance (SPA or SAC sites).

Where IDBs are the operating authority for sites, they may or may not actively manage the water levels.

Upper Witham IDB does not have any official water level management plans, however most pumping stations in the district are operated with higher water levels over drier periods in order to enhance watercourse biodiversity.



5. The Witham Third District Biodiversity Audit

5.3. The Witham Third Internal Drainage District

The drainage district is located on the northern and north-eastern sides of the River Witham between Lincoln and near Coningsby where there is the confluence of the River Bain with the River Witham.

In the east there is a narrow finger of land which runs north from Coningsby through Horncastle up to Goulceby, following the course of the River Bain, along which there are several isolated Board maintained watercourses. Between Coningsby and Bardney the Board's area extends on the north-eastern side of the River Witham as a series of fingers of land which follow watercourses upstream away from the River Witham.

These include watercourses located around Woodhall Spa, Stixwold, Horsington, Southrey and Bucknall. In this area some "islands" of high ground lie outside the Board's area, such as at Southery and Bardney. Between Bardney and Lincoln, the Board's area runs north from the River Witham following the valley of Barlings Eau, with watercourses maintained by the Board being numerous tributaries of this main watercourse.

The tributaries occur in the vicinity of Langworth, Sudbrooke, Welton, Faldingworth, Wickenby, Lissington and Holton cum Beckering. Finally, an arm of land which has several Board maintained watercourses runs west from near Short Ferry along the north side of the River Witham past Cherry Willingham and into Lincoln City.

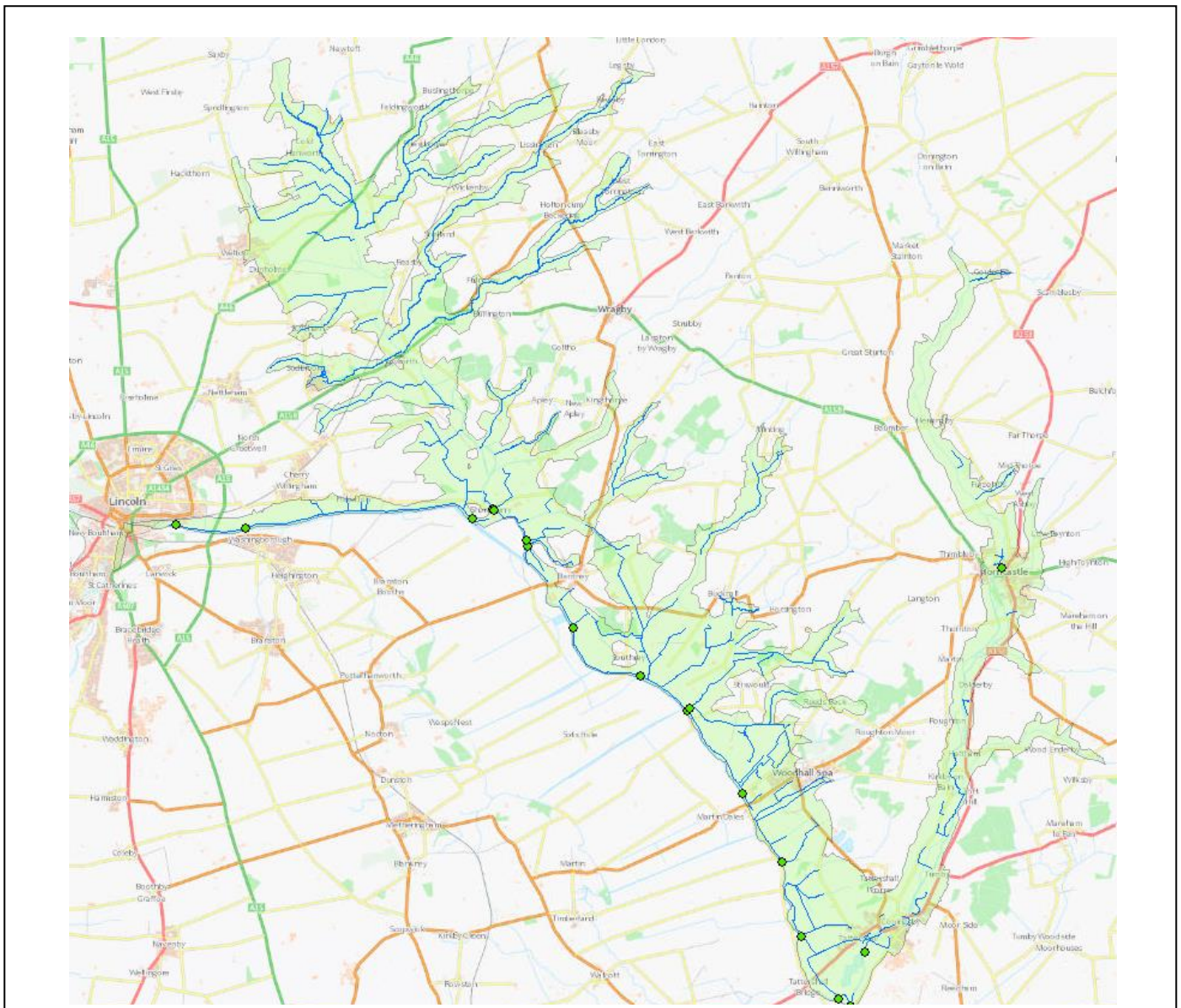
The following outlines the key details of the District:

- Total area of the drainage district: **21,100 ha**
- Area of agricultural land: **15,086 ha**
- Area of other (non-agricultural) land: **ha**
- Watercourses (maintained): **230 km**
- Pumping Stations: **15**



5.5. Map of Audit Area (Drainage District)

The area covered by the drainage district of the IDB is shown below in Figure 1.





5.6. Geology

The geology of the Board's area is mixed. Along the immediate valley of the River Witham there are areas of fen peat; and away from this area the materials encountered are sand and gravel, boulder clay, alluvium and limestone.

5.7. Landscape Character

Natural England has divided the whole of England into a number of National Character Areas (NCA) based on characteristic landforms, wildlife and land use. For each NCA, there is a prepared profile that characterises the wildlife and natural features, identifies the influences that act upon those features and sets objectives for nature conservation.

The part of the Board's area which lies immediately alongside the River Witham is within The Fens character area, however the greater part lies within the Central Lincolnshire Vale character area

5.8. Landscape Designations

There are no National Parks or Areas of Outstanding Natural Beauty (AONB) in the Drainage District

5.9. Sites and Monuments

Scheduled Ancient Monuments are not directly related to Nature and Biodiversity matters. Information held by the Board and other sources has therefore not been collated. Monuments are only relevant in cases where they abut the Board maintained watercourses and such monuments would be referred to on a site by site basis as appropriate.

5.10. Tree Preservation Orders

Tree Preservation Orders (TPOs) are not directly related to Nature and Biodiversity matter since they are made on individual trees, groups or woods for landscape and amenity reasons. Information held by the Board and other sources has therefore not been collated. Orders are only relevant where they occur adjacent to the Board maintained watercourses and would be referred to on a site by site basis as appropriate.



5.11. Statutory Nature Conservation Sites

5.8.1 Internationally Designated Sites

There are no internationally designated nature conservation sites within the District.

5.8.2 Nationally Designated Sites

The following nationally-designated conservation sites, relevant to water level management and/or maintenance activities of the IDB, are found within the drainage district.

Site name	Designation	Component of an International Site	Features Relevant to IDB
Tattershall Old Gravel Pits	SSSI	No	Open water and wet woodland habitats; swamp and aquatic vegetation
Lincolnshire Limewoods	SSSI & NNR	No	Broad-leaved woodland
Tattershall Carrs	SSSI	No	Wet and dry broad-leaved woodland

5.8.3 Local Nature Reserves

The following Local Nature Reserves are relevant to the activities of the IDB are found within the drainage district.

Site name	Designation	Features Relevant to IDB
The Pingle, Coningsby	Local Nature Reserve (LNR)	<ul style="list-style-type: none"> • Open water • Wet woodland

5.8.4. Non-statutory Nature Conservation Sites

A number of sites have been identified locally as being important for wildlife. Whilst these designations do not have statutory status, the sites are important for their contribution to biodiversity and planning policy requires that they are given consideration by the LPA in forming any decision. The following relevant Local Wildlife Sites are to be found within or bordering the drainage district.

Site name	Designation	Features Relevant to IDB
Gautby Road Verges	LWS	Field / pasture / grassland
Green Lane, Hemingby	LWS	Road verge / green lane / path
Hemingby Lane Verges, Sands Farm	LWS	Road verge / green lane / path
Horsemoor Lane Verge, Hemingby	LWS	Road verge / green lane / path



Wilksby Church to Wood Enderby Road Verges	LWS	Road verge / green lane / path
Furze Hill Road Verges	LWS	Road verge / green lane / path
Barlings Park	LWS	Woodland / plantation
Gatecliff Wood	LWS	Woodland / plantation
Long Wood, Fiskerton	LWS	Woodland / plantation
Newball Wood, South	LWS	Woodland / plantation
Rand Wood	LWS	Woodland / plantation
Buslingthorpe Wood	LWS	Woodland / plantation
Friesthorpe Grassland	LWS	Field / pasture / grassland
Birch Wood, Bardney	LWS	Woodland / plantation
Bucknall Wood	LWS	Woodland / plantation
Southrey Wood North-East	LWS	Woodland / plantation
Tupholme Abbey	LWS	Field / pasture / grassland
Tupholme Grassland	LWS	Field / pasture / grassland
Chamber's Farm Meadow	LWS	Field / pasture / grassland
Cream Poke Wood	LWS	Woodland / plantation
Foxhall Wood	LWS	Woodland / plantation
Great West Wood, New Plantation and Little West Wood	LWS	Woodland / plantation
North Spring Wood	LWS	Woodland / plantation
Scotgrove Wood Central-South	LWS	Woodland / plantation
Snakeholme Pit	LWS	Field / pasture / grassland
Spring Wood, Bullington	LWS	Woodland / plantation
Asterby Cottage South	LWS	Field / pasture / grassland
Horsington Wood	LWS	Woodland / plantation
Stixwold Wood	LWS	Woodland / plantation
Greetwell Hall Wood	LWS	Woodland / plantation
Snarford Meadow	LWS	Field / pasture / grassland
Castle Leisure Park, Tattershall	LWS	Lake / pond / reservoir / pit
Mill Drain, Tattershall	LWS	Drain / river / canal / stream / ditch / spring
Scrivelsby Spinney	LWS	Woodland / plantation
Woodhall Spa Wetland	LWS	Marsh / reedbed / swamp / carr
The Ings, Coningsby	LWS	Lake / pond / reservoir / pit
Edlington Scrubbs	LWS	Woodland / plantation
Hogg Wood	LWS	Woodland / plantation
Kirkby on Bain Pits	LWS	Lake / pond / reservoir / pit
West Ashby Gravel Pit	LWS	Lake / pond / reservoir / pit
Horncastle Canal Grassland	LWS	Field / pasture / grassland
Watt's Wood	LWS	Woodland / plantation
Fiskerton Fen	LWS	Field / pasture / grassland
Bleasby Earthworks	LWS	Field / pasture / grassland
Kirkby Gravel Pits	LWS	Lake / pond / reservoir / pit



West Ashby Meadow	LWS	Field / pasture / grassland
Goslings Corner	LWS	Field / pasture / grassland
Moorby Road Verges	LWS	Road verge / green lane / path
Inner Drains at Branston Island	LWS	Drain / river / canal / stream / ditch / spring
Old River Witham at Branston Island	LWS	Drain / river / canal / stream / ditch / spring
Harbour Wood	LWS	Woodland / plantation
South Delph	LWS	Drain / river / canal / stream / ditch / spring
Barlings Eau	LWS	Drain / river / canal / stream / ditch / spring
Original Pickering's Meadows	LWS	Field / pasture / grassland
Cold Hanworth Road Verge	LWS	Road verge / green lane / path
Sincil Dike, Washingborough	LWS	Drain / river / canal / stream / ditch / spring
South Common	LWS	Field / pasture / grassland
Witham Corridor, East of City Centre	LWS	Drain / river / canal / stream / ditch / spring
Willingham Fen West	LWS	Field / pasture / grassland
Great Gowts Drain	LWS	Drain / river / canal / stream / ditch / spring
Bardney Settling Ponds	LWS	Lake / pond / reservoir / pit
New Park Wood	LWS	Woodland / plantation
Witham Way	LWS	Road verge / green lane / path
Halstead and Stobourn Woods	LWS	Woodland / plantation
Bracken Golf Course	LWS	Golf course
The Spa Trail	LWS	Disused railway
Highall Wood	LWS	Woodland / plantation
Glebe Farm North	LWS	Field / pasture / grassland
Asterby Cottage North	LWS	Lake / pond / reservoir / pit
Chamber's Plantation	LWS	Woodland / plantation
Great Scrubbs Wood	LWS	Woodland / plantation
Hoop Lane Road Verges	LWS	Road verge / green lane / path
Camshaw's Plantation	LWS	Woodland / plantation
Austacre Wood	LWS	Woodland / plantation
Far North End Wood	LWS	Woodland / plantation
Long Wood and Little Wood	SNCI	Woodland / plantation
Hemingby Meadow	SNCI	Field / pasture / grassland
Big Triangle, Tumbly	SNCI	Field / pasture / grassland
Haltham Wood	SNCI	Woodland / plantation



5.12. Habitat Audit Summary

This habitat audit summary lists the UK priority habitats that occur within the drainage district and are identified as likely to be influenced by the Board’s activities. Also listed are habitats deemed to be of local importance and/or featured in local nature strategies that occur in the drainage district. Finally, brief notes are included on the potential for the IDB to maintain, restore or expand its important habitats.

National Priority Habitat	National Status & Extent	Local Priority Habitat	Habitat of Importance for IDB	Extent, status and Location of Habitat of Importance within drainage district	IDB Potential for Maintaining, Restoring or Expanding Habitat (high/medium/low)
Fen, marsh & swamp	Approximately 5,000ha of reed beds in the UK	Fens & wet reedbeds	Reedbed	Isolated open water bodies. Extensive reed margins on some watercourses.	Potential to expand reedbed habitat by extending existing margins
Broadleaved, mixed and yew woodland	Approximately 50,000-70,000 hectares	Wet woodland	Wet woodland	Marginal to isolated open water bodies	Very limited potential to expand this habitat by extending existing areas
Rivers and streams & Standing open water and canals	Up to 300,000 hectares total	Rivers, canals and drains	Watercourses	All of the Board maintained watercourses with permanent water	Potential to restore permanent water to dry or only seasonally wet watercourses, and to create new watercourses to offset loss to culverting
	Up to 300,000 hectares total	Rivers, canals and drains	Watercourses	Woodhall Spa Sewer, Goulceby Beck, Sudbrooke Beck, Scothern Drain	Maintain this habitat by sensitive watercourse management
Hedgerows	Widespread	Hedgerows	Hedgerows	Throughout the Board area	Survey and monitor to assess and maintain the resource of this habitat



5.13. Species Audit Summary

This species audit summary will include priority and other species including INNS that occur within the drainage district and are identified as likely to be influenced by the Board’s activities. Also listed are species deemed to be of local importance and/or identified by local nature strategies. Finally, brief notes are included on the potential for the IDB to improve the status of the species in the drainage district.

Common & scientific name	National Status	Local Status	Location of Species of Importance within drainage district	IDB Potential for Maintaining or Increasing Species Population or Range (High/medium/low)
Water Vole <i>Arvicola terrestris</i>	S41 Priority Species	Present throughout Lincolnshire. Populations threatened by increasing mink populations	Probably throughout the Board District with the exception of smaller headwaters	Maintain and, where appropriate, extend the area of suitable water vole habitat.
Otter <i>Lutra lutra</i>	S41 Priority Species, protected under W&C Act 1981	Present throughout Lincolnshire. Populations threatened by habitat destruction and persecution.	Scattered through the District. Often seen close to E.A. main rivers such as the Witham.	Ensure that riparian habitat has sufficient bankside vegetation and undisturbed terrestrial cover to provide resting and breeding sites for otters.
Eel <i>Anguilla anguilla</i>	S41 Priority Species, IUCN Critically Endangered	Common throughout the Board District.	Throughout the Board area.	Establish baseline data and consider installing eel friendly pumps where possible
Toad <i>Bufo bufo</i>	S41 Priority Species	Likely very common, although current records are scattered	Likely common, although current records are scattered	Establish baseline data
Reed bunting <i>Emberiza schoeniclus schoeniclus</i>	S41 Priority Species	Widespread	Widespread, often seen on watercourses with extensive reed bed	Maintain and, where appropriate, extend the area of suitable reed bunting habitat.
Barn owl <i>Tyto alba</i>	S41 Priority Species	Lincolnshire has one of the highest densities of barn owls of any county in the country thanks to the work of local drainage authorities, and farmers and landowners who manage grassland edges, drains and	Widespread, particularly within low lying farmland areas	Maintain nest boxes and install new sites where appropriate



		field boundaries to benefit the field vole and put up nesting boxes.		
Grass Snake <i>Natrix natrix</i>	S41 Priority Species	Common	Channels and their banks, including drying out weed rakings.	Maintenance of suitable habitat, install weed baskets where appropriate
Bats <i>Chiroptera spp.</i>	S41 Priority Species	Widespread	Trees, near channels and possibly buildings	Creation of artificial roost sites where appropriate
White clawed crayfish <i>Austropotamobius pallipes</i>	S41 Priority Species	Common	More common in the northern section of the District	Establish baseline data



5.14. Invasive Non-native Species Summary

The IDB has identified the following high risk aquatic and riparian invasive non-native species within the drainage district that are identified as likely to be influenced by, or impact upon the Board’s activities.

Common & scientific name	Location within IDB if known	Year first recorded	Local status / Extent within drainage district	IDB potential for controlling species population or range
Floating pennywort <i>Hydrocotyle ranunculoides</i>	Watercourses close to Lincoln City, mainly.	2010	Present but not extensive within District	IDB management plan and control measures, and partnership working.
<i>Azolla spp.</i>	Widespread on most channels during summer months	2000’s	Widespread on most channels during summer months	IDB management plan and control measures, and partnership working.
New Zealand pygmyweed <i>Crassula helmsii</i>	Common. Easily confused with <i>Azolla spp.</i>	2010	Common within more urban areas	IDB management plan and control measures, and partnership working.



5.15. Water Level Management Plans

Water Level Management Plans (WLMPs) provide a means by which the water level requirements for a range of activities in a particular area, including agriculture, flood defense and conservation, can be balanced and integrated. Guidance for the production of WLMPs by the operating authorities for sites of conservation interest was produced by MAFF/ Defra in 1992, 1999 and 2004. This guidance concentrated on SSSIs, especially those of international importance (SPA or SAC sites).

Where IDBs are the operating authority for sites, they may or may not actively manage the water levels.

Witham Third District IDB does not have any official water level management plans, however most pumping stations in the district are operated with higher water levels over drier periods in order to enhance watercourse biodiversity.

6. The Witham First District Biodiversity Audit

6.3. The Witham First Internal Drainage District

The Board district is an area of Lincolnshire fenland which stretches north and north-west from Chapel Hill near Billingham as far as Lincoln, on the south and south-west side of the River Witham. It includes the fens of the villages lying to the west on the adjacent high ground ie Billingham, Walcott, Thorpe Tilney, Timberland, Martin, Blankney, Metherringham, Dunston, Nocton, Potterhanworth, Branston, Heighington and Washingborough. A small north running side-arm of fenland lies within the Boards' area and this extends from between North Kyme and Anwick north to near Metherringham, and it includes the fens of Anwick, Ruskington, Dorrington and Digby. There are two arms of land within the Board's area which extend west away from the fens. One runs from Digby Fen, west past Digby village as far as Ashby-de-la Launde. The other runs from Anwick Fen west past Anwick village (near which there is a small "island" of high ground outside the Board's area), then south-west through the outskirts of Sleaford, to Quarrington, Rauceby Station and South Rauceby.

The following outlines the key details of the District:

- Total area of the drainage district: **16,384 ha**
- Area of agricultural land: **15,489 ha**
- Area of other (non-agricultural) land: **895 ha**
- Watercourses (maintained): **270 km**
- Pumping Stations: **13**

6.4. Map of Audit Area (Drainage District)

The area covered by the drainage district of the IDB is shown below in Figure 1.

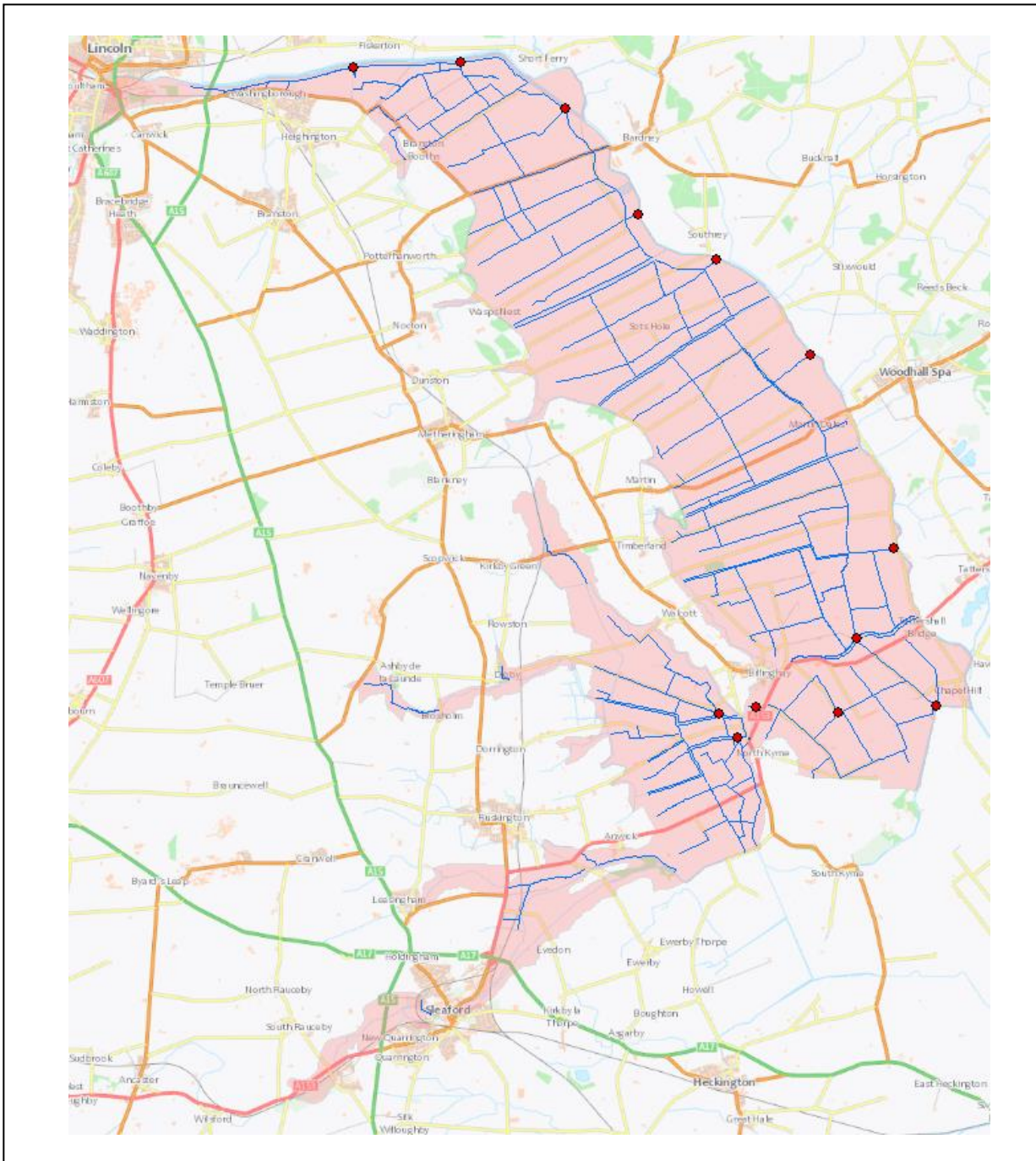


Figure 1. Witham First Internal Drainage District and Pumping Station Locations.

6.5. Geology

The geology of the Board's area which lies in the arms of fenland is fen peat. The arms of the Board's area which extend outside the fens have geology of boulder clay, sand and gravel, and limestone.

6.6. Landscape Character

Natural England has divided the whole of England into a number of Joint Character Areas (JCA) based on characteristic landforms, wildlife and land use. They are not designations and are not confined by traditional administrative boundaries. For each JCA, Natural England has prepared a profile that characterises the wildlife and natural features, identifies the influences that act upon those features and sets objectives for nature conservation.

The fenland parts of the Board's area are within The Fens character area. The arms of the Board's area which extend outside the fens, however lie within the Southern Lincolnshire Edge character area

6.7. Landscape Designations

There are no National Parks or Areas of Outstanding Natural Beauty (AONB) in the Drainage District

6.8. Sites and Monuments

Scheduled Ancient Monuments are not directly related to Nature and Biodiversity matters. Information held by the Board and other sources has therefore not been collated. Monuments are only relevant in cases where they abut the Board maintained watercourses and such monuments would be referred to on a site by site basis as appropriate.

6.9. Tree Preservation Orders

Tree Preservation Orders (TPOs) are not directly related to Nature and Biodiversity matter since they are made on individual trees, groups or woods for landscape and amenity reasons. Information held by the Board and other sources has therefore not been collated. Orders are only relevant where they occur adjacent to the Board maintained watercourses and would be referred to on a site by site basis as appropriate.

6.10. Statutory Nature Conservation Sites

6.8.1. Internationally Designated Sites

There are no internationally designated nature conservation sites within the District.

6.8.2. Nationally Designated Sites

The following nationally-designated conservation sites, relevant to water level management and/or maintenance activities of the IDB, are found within the drainage district.

Site name	Designation	Features Relevant to IDB
Potterhanworth Wood	Site of Special Scientific Interest (SSSI)	Ancient broad-leaved woodland
Wilsford & Rauceby Warren	SSSI	Unimproved limestone and sandy grassland, wet woodland, open water

6.8.3. Local Nature Reserves

The following Local Nature Reserves are relevant to the activities of the IDB are found within the drainage district.

Site name	Designation	Features Relevant to IDB
Lollycocks Field	Local Nature Reserve (LNR)	Pond, wetland vegetation
Mareham Pastures	LNR	Grassland

6.8.4. Non-statutory Nature Conservation Sites

A number of sites have been identified locally as being important for wildlife. Whilst these designations do not have statutory status, the sites are important for their contribution to biodiversity and planning policy requires that they are given consideration by the LPA in forming any decision. The following relevant Local Wildlife Sites are to be found within or bordering the drainage district.

Site name	Designation	Features Relevant to IDB
Nocton Delph	Selected LWS	Drain / river / canal / stream / ditch / spring
Sleaford Fen	Selected LWS	Woodland / plantation
Sleaford Meadows	Selected LWS	Field / pasture / grassland
Lollycock's Field	Selected LWS	Field / pasture / grassland
Cobbler's Lock Sedge and Reed Beds	Selected LWS	Marsh / reedbed / swamp / carr
North Kyme Common	Selected LWS	Field / pasture / grassland

Witham & Humber Internal Drainage Boards Nature Strategy

North Kyme Common Pond	Selected LWS	Lake / pond / reservoir / pit
Ruskington Pit	Selected LWS	Lake / pond / reservoir / pit
Bardney Settling Ponds	Selected LWS	Lake / pond / reservoir / pit
Metheringham Delph	Selected LWS	Drain / river / canal / stream / ditch / spring
Witham Way	Selected LWS	Road verge / green lane / path
Timberland Delph	Selected LWS	Drain / river / canal / stream / ditch / spring
Canwick Road New Cemetery and St Swithin's Cemetery	Selected LWS	Field / pasture / grassland
Canwick Road Old Cemetery	Selected LWS	Field / pasture / grassland
Cow Paddle	Selected LWS	Field / pasture / grassland
Cow Paddle East	Selected LWS	Field / pasture / grassland
Cow Paddle Railway Embankment East	Selected LWS	Field / pasture / grassland
Wilsford Warren Road Verge	Selected LWS	Road verge / green lane / path
Evedon Wood	Selected LWS	Woodland / plantation
Nocton Wood	Selected LWS	Woodland / plantation
South Delph	Selected LWS	Drain / river / canal / stream / ditch / spring
Witham Corridor, East of City Centre	Selected LWS	Drain / river / canal / stream / ditch / spring
Sincil Dike, Washingborough	Selected LWS	Drain / river / canal / stream / ditch / spring
South Common	Selected LWS	Field / pasture / grassland
Canwick Park Golf Course	Selected LWS	Field / pasture / grassland



6.11. Habitat Audit Summary

This habitat audit summary lists the UK priority habitats that occur within the drainage district and are identified as likely to be influenced by the Board’s activities. Also listed are habitats deemed to be of local importance and/or featured in local nature strategies that occur in the drainage district. Finally, brief notes are included on the potential for the IDB to maintain, restore or expand its important habitats.

National Priority Habitat	National Status & Extent	Local Priority Habitat	Habitat of Importance for IDB	Extent, status and Location of Habitat of Importance within drainage district	IDB Potential for Maintaining, Restoring or Expanding Habitat (high/medium/low)
Fen, marsh & swamp	Approximately 5,000ha of reed beds in the UK	Fens & wet reedbeds	Reedbed	Isolated open water bodies. Extensive reed margins on some watercourses	Potential to expand reedbed habitat by extending existing margins
Broadleaved, mixed and yew woodland	Approximately 50,000-70,000 hectares	Wet woodland	Wet woodland	Marginal to isolated open water bodies and some larger channels	Very limited potential to expand this habitat by extending existing areas
Rivers and streams & Standing open water and canals	Up to 300,000 hectares total	Rivers, canals and drains	Watercourses	All of the Board’s watercourses with permanent water	Potential to restore permanent water to dry or only seasonally wet watercourses, and to create new watercourses to offset loss to culverting
	Up to 300,000 hectares total	Rivers, canals and drains	Watercourses	Isolated open water bodies. Extensive reed margins on some watercourses	Maintain this habitat by sensitive watercourse management
Hedgerows	Widespread	Hedgerows	Hedgerows	Throughout the Board area	Survey and monitor to assess and maintain the resource of this habitat



6.12. Species Audit Summary

This species audit summary will include priority and other species including INNS that occur within the drainage district and are identified as likely to be influenced by the Board’s activities. Also listed are species deemed to be of local importance and/or identified by local nature strategies. Finally, brief notes are included on the potential for the IDB to improve the status of the species in the drainage district.

Common & scientific name	National Status	Local Status	Location of Species of Importance within drainage district	IDB Potential for Maintaining or Increasing Species Population or Range (High/medium/low)
Water Vole <i>Arvicola terrestris</i>	S41 Priority Species	Present throughout Lincolnshire. Populations threatened by increasing mink populations	Probably throughout the Board District with the exception of smaller headwaters	Maintain and, where appropriate, extend the area of suitable water vole habitat.
Otter <i>Lutra lutra</i>	S41 Priority Species, protected under W&C Act 1981	Present throughout Lincolnshire. Populations threatened by habitat destruction and persecution.	Scattered through the District. Often seen close to E.A. main rivers such as the Witham.	Ensure that riparian habitat has sufficient bankside vegetation and undisturbed terrestrial cover to provide resting and breeding sites for otters.
Eel <i>Anguilla anguilla</i>	S41 Priority Species, IUCN Critically Endangered	Common throughout the Board District.	Throughout the Board area.	Establish baseline data and consider installing eel friendly pumps where possible
Toad <i>Bufo bufo</i>	S41 Priority Species	Likely very common, although current records are scattered	Likely common, although current records are scattered	Establish baseline data
Reed bunting <i>Emberiza schoeniclus schoeniclus</i>	S41 Priority Species	Widespread	Widespread, often seen on watercourses with extensive reed bed	Maintain and, where appropriate, extend the area of suitable reed bunting habitat.
Barn owl <i>Tyto alba</i>	S41 Priority Species	Lincolnshire has one of the highest densities of barn owls of any county in the country thanks to the work of local drainage authorities, and farmers and landowners who	Widespread, particularly within low lying farmland areas	Maintain nest boxes and install new sites where appropriate



		manage grassland edges, drains and field boundaries to benefit the field vole and put up nesting boxes.		
Grass Snake <i>Natrix natrix</i>	S41 Priority Species	Common	Channels and their banks, including dryingout weed rakings.	Maintenance of suitable habitat, install weed baskets where appropriate
Bats <i>Chiroptera spp.</i>	S41 Priority Species	Widespread	Trees, near channels and possibly buildings	Creation of artificial roost sites where appropriate
White clawed crayfish <i>Austropotamo bius pallipes</i>	S41 Priority Species	Common	Uncommon	Establish baseline data

6.13. Invasive Non-native Species Summary

The IDB has identified the following high risk aquatic and riparian invasive non-native species within the drainage district that are identified as likely to be influenced by, or impact upon the Board’s activities.

Common & scientific name	Location within IDB if known	Year first recorded	Local status / Extent within drainage district	IDB potential for controlling species population or range
Floating pennywort <i>Hydrocotyle ranunculoides</i>	Watercourses close to Lincoln City, mainly.	2010	Present but not extensive within District	IDB management plan and control measures, and partnership working.
<i>Azolla spp.</i>	Widespread on most channels during summer months	2000’s	Widespread on most channels during summer months	IDB management plan and control measures, and partnership working.



New Zealand pygmyweed <i>Crassula helmsii</i>	Common. Easily confused with Azolla spp.	2010	Common within more urban areas with urban watercourses such as Sleaford	IDB management plan and control measures, and partnership working.
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6.14. Water Level Management Plans

Water Level Management Plans (WLMPs) provide a means by which the water level requirements for a range of activities in a particular area, including agriculture, flood defense and conservation, can be balanced and integrated. Guidance for the production of WLMPs by the operating authorities for sites of conservation interest was produced by MAFF/ Defra in 1992, 1999 and 2004. This guidance concentrated on SSSIs, especially those of international importance (SPA or SAC sites).

Where IDBs are the operating authority for sites, they may or may not actively manage the water levels.

Witham First District IDB does not have any official water level management plans, however most pumping stations in the district are operated with higher water levels over drier periods in order to enhance watercourse biodiversity.

7. The North East Lindsey IDB Biodiversity Audit

7.3. The North East Lindsey Internal Drainage District

The Board district is an area mainly within North East Lincolnshire, directly to the south of the Humber Estuary from South Ferriby to the West, down to Humberston Fitties in the South East.

The district includes the areas of Barrow Haven, including Far Ings Nature Reserve, and New Holland to the north and follows the E.A. East Halton and Skitter Beck from Keelby, through Ulceby Skitter, past East Halton to the outfall into the estuary.

Further south, Immingham, areas of Habrough, Stallingborough, Great Coates, Healing and the Pyewipe area of Grimsby all fall within the district, in addition to the River Freshney and Laceby Beck, with a small area of Laceby and Waltham included also.

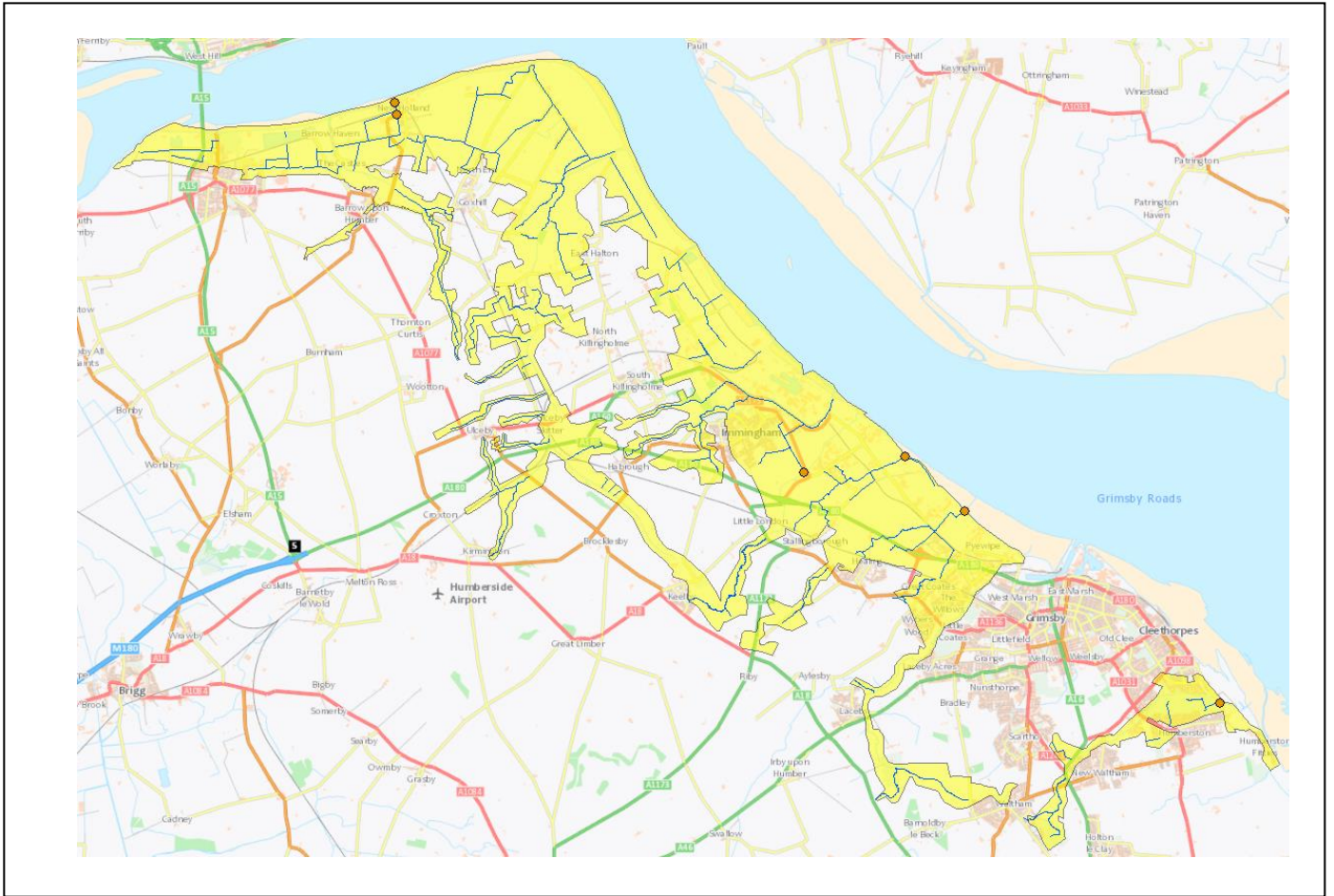
At the southernmost area of the district, Little Buck Beck Branches 3 & 4 lead from west from Holton le Clay into Buck Beck, with Branches 1 & 2 north of Humberston. The district ends between the Humberston Fitties and RSPB Tetney Marshes.

The following outlines the key details of the District:

- Total area of the drainage district: **11,593 ha**
- Area of agricultural land: **7,446 ha**
- Area of other (non-agricultural) land: **4,147 ha**
- Watercourses (maintained): **143 km**
- Pumping Stations: **6**

7.4. Map of Audit Area (Drainage District)

The area covered by the drainage district of the IDB is shown below.



7.5. Geology

The bedrock geology of the Board's area consists entirely of chalk, formed approximately 66-100 million years ago in the Cretaceous Period. The superficial geological deposits are alluvium – clay, silt and sand, likely formed up to 2 million years ago in the Quaternary Period when the local environment was previously dominated by rivers. There is a 'strip' of sand and gravel fluvial deposit running from the East Halton area south to Kirmington, reflecting a previous river path.

7.6. Landscape Character

Natural England has divided the whole of England into a number of National Character Areas (NCA) based on characteristic landforms, wildlife and land use. They are not designations and are not confined by traditional administrative boundaries. For each NCA, Natural England has prepared a profile that characterises the wildlife and natural features, identifies the influences that act upon those features and sets objectives for nature conservation.

The parts of Board area abutting the estuary are within the Humber Estuary NCA, characterised by the open and expansive waters of the Humber where it flows in to the North Sea and the adjacent low-lying land. Further inland, the Board area is within the Lincolnshire Coast and Marshes area, characterised by a wide coastal plain which extends from Barton-upon-Humber in the north, across to Grimsby at the mouth of the Humber and south to Skegness.

7.7. Landscape Designations

There are no National Parks or Areas of Outstanding Natural Beauty (AONB) in the Drainage District. However, the area of the district between Laceby and Barnoldby le Beck is close to the Lincolnshire Wold AONB, with the source of Laceby Beck being within 200 metres of the boundary.

7.8. Sites and Monuments

Scheduled Ancient Monuments are not directly related to Nature and Biodiversity matters. Information held by the Board and other sources has therefore not been collated. Monuments are only relevant in cases where they abut the Board maintained watercourses and such monuments would be referred to on a site by site basis as appropriate.

7.9. Tree Preservation Orders

Tree Preservation Orders (TPOs) are not directly related to Nature and Biodiversity matter since they are made on individual trees, groups or woods for landscape and amenity reasons. Information held by the Board and other sources has therefore not been collated. Orders are only relevant where they occur adjacent to the Board maintained watercourses and would be referred to on a site by site basis as appropriate.

7.10. Statutory Nature Conservation Sites

7.8.1. Internationally Designated Sites

There are no internationally designated nature conservation sites within the District.

7.8.2. Nationally Designated Sites

The following nationally-designated conservation sites, relevant to water level management and/or maintenance activities of the IDB, are found within the drainage district.

Site name	Designation	Features Relevant to IDB
Humber Estuary	SSSI	Estuary, saltmarsh, non-breeding birds
North Killingholme Haven Pits	SSSI	Saline coastal lagoon, waterbirds & non-breeding birds
Far Ings	NNR	Reed bed, migrating birds

7.10.1. Local Nature Reserves

The following Local Nature Reserves are relevant to the activities of the IDB are found within the drainage district.

Site name	Designation	Features Relevant to IDB
Far Ings	LNR	Reed bed, migrating birds
Waters Edge	LNR	Meadow, reed bed, ponds
Cleethorpes Country Park	LNR	Meadow, watercourse

7.10.2. Non-statutory Nature Conservation Sites

A number of sites have been identified locally as being important for wildlife. Whilst these designations do not have statutory status, the sites are important for their contribution to biodiversity and planning policy requires that they are given consideration by the LPA in forming any decision. The following relevant Local Wildlife Sites are to be found within or bordering the drainage district.

Site name	Designation	Features Relevant to IDB
Stallingborough Meadow	Selected LWS	Woodland / plantation
Goxhill Meadows	Selected LWS	Field / pasture / grassland
Sykes Lane Meadows	Selected LWS	Field / pasture / grassland
Station Road Field	Selected LWS	Field / pasture / grassland
Rosper Road Pools	Selected LWS	Field / pasture / grassland

Witham & Humber Internal Drainage Boards Nature Strategy

Halton Marsh Clay Pits	Selected LWS	Lake / pond / reservoir / pit
Tioxide West Field	Selected LWS	Brownfield / ruderal / previously developed / disused railway
Freshney Parkway North	Selected LWS	Drain / river / canal / stream / ditch / spring
Freshney Parkway	Selected LWS	Field / pasture / grassland
Stallingborough Meadows East	Selected LWS	Field / pasture / grassland
Cleethorpes Sand Dunes Far South	Selected LWS	Sand dune / sand dune grassland
Laceby Beck North	Selected LWS	Drain / river / canal / stream / ditch / spring
Homestead Park Pond	Selected LWS	Lake / pond / reservoir / pit
Stallingborough Fish Ponds	Selected LWS	Lake / pond / reservoir / pit
Laporte Road Brownfield Site	Selected LWS	Brownfield / ruderal / previously developed / disused railway
Barton Broads	Selected LWS	Lake / pond / reservoir / pit
East Marsh	Selected LWS	Marsh / reedbed / swamp / carr
Abbot's Lodge Grassland	Selected LWS	Field / pasture / grassland
Cleethorpes Country Park	Selected LWS	Field / pasture / grassland
Old Sand Dunes North West	Selected LWS	Sand dune / sand dune grassland
River Freshney Headwaters	Selected LWS	Drain / river / canal / stream / ditch / spring
Buck Beck East	Selected LWS	Drain / river / canal / stream / ditch / spring
Sweedale Croft Drain	Selected LWS	Drain / river / canal / stream / ditch / spring
Burkinshaw's Covert	Selected LWS	Woodland / plantation
Healing Cress Beds	Selected LWS	Field / pasture / grassland
Laceby Carr Plantation and Pond	Selected LWS	Woodland / plantation
Barrow Blow Wells	Selected LWS	Woodland / plantation
Far Ings	Selected LWS	Field / pasture / grassland
Goxhill Marsh South	Selected LWS	Marsh / reedbed / swamp / carr
Waters' Edge	Selected LWS	Field / pasture / grassland
Barton Cliff New Quarry	Selected LWS	Field / pasture / grassland
A15/A1077 Road Verges	Selected LWS	Road verge / green lane / path
South Cloister Covert	Selected LWS	Woodland / plantation
Chase Hill Wood	Selected LWS	Woodland / plantation
Roxton Wood	Selected LWS	Woodland / plantation
Roxton Wood Road Verges	Selected LWS	Road verge / green lane / path



7.11. Habitat Audit Summary

This habitat audit summary lists the UK priority habitats that occur within the drainage district and are identified as likely to be influenced by the Board’s activities. Also listed are habitats deemed to be of local importance and/or featured in local nature strategies that occur in the drainage district. Finally, brief notes are included on the potential for the IDB to maintain, restore or expand its important habitats.

National Priority Habitat	National Status & Extent	Local Priority Habitat	Habitat of Importance for IDB	Extent, status and Location of Habitat of Importance within drainage district	IDB Potential for Maintaining, Restoring or Expanding Habitat (high/medium/low)
Fen, marsh & swamp	Approximately 5,000ha of reed beds in the UK	Fens & wet reedbeds	Reedbed	Isolated open water bodies. Extensive reed margins on some watercourses	Potential to expand reedbed habitat by extending existing margins
Broadleaved, mixed and yew woodland	Approximately 50,000-70,000 hectares	Wet woodland	Wet woodland	Marginal to isolated open water bodies and some larger channels	Very limited potential to expand this habitat by extending existing areas
Rivers and streams & Standing open water and canals	Up to 300,000 hectares total	Rivers, canals and drains	Watercourses	All of the Board’s watercourses with permanent water	Potential to restore permanent water to dry or only seasonally wet watercourses, and to create new watercourses to offset loss to culverting
	Up to 300,000 hectares total	Rivers, canals and drains	Watercourses	Isolated open water bodies. Extensive reed margins on some watercourses. Reed beds often within designated sites, e.g. Rosper Road Pools	Maintain this habitat by sensitive watercourse management
Hedgerows	Widespread	Hedgerows	Hedgerows	Throughout the Board area	Survey and monitor to assess and maintain the resource of this habitat



7.12. Species Audit Summary

This species audit summary will include priority and other species including INNS that occur within the drainage district and are identified as likely to be influenced by the Board’s activities. Also listed are species deemed to be of local importance and/or identified by local nature strategies. Finally, brief notes are included on the potential for the IDB to improve the status of the species in the drainage district.

Common & scientific name	National Status	Local Status	Location of Species of Importance within drainage district	IDB Potential for Maintaining or Increasing Species Population or Range (High/medium/low)
Water Vole <i>Arvicola terrestris</i>	S41 Priority Species	Present throughout Lincolnshire. Populations threatened by increasing mink populations	Probably throughout the Board District with the exception of smaller headwaters	Maintain and, where appropriate, extend the area of suitable water vole habitat.
Otter <i>Lutra lutra</i>	S41 Priority Species, protected under W&C Act 1981	Present throughout Lincolnshire. Populations threatened by habitat destruction and persecution.	Present but uncommon throughout the District.	Ensure that riparian habitat has sufficient bankside vegetation and undisturbed terrestrial cover to provide resting and breeding sites for otters.
Eel <i>Anguilla anguilla</i>	S41 Priority Species, IUCN Critically Endangered	Common throughout the Board District.	Throughout the Board area.	Establish baseline data and consider installing eel friendly pumps where possible
Toad <i>Bufo bufo</i>	S41 Priority Species	Likely very common, although current records are scattered	Likely common, although current records are scattered	Establish baseline data
Reed bunting <i>Emberiza schoeniclus schoeniclus</i>	S41 Priority Species	Widespread	Widespread, often seen on watercourses with extensive reed bed. Very common in areas such as Rosper Road Pools.	Maintain and, where appropriate, extend the area of suitable reed bunting habitat.
Barn owl <i>Tyto alba</i>	S41 Priority Species	Lincolnshire has one of the highest densities of barn owls of any county in the country thanks to the work of local drainage authorities, and farmers and landowners who	Widespread throughout Board District.	Maintain nest boxes and install new sites where appropriate



		manage grassland edges, drains and field boundaries to benefit the field vole and put up nesting boxes.		
Grass Snake <i>Natrix natrix</i>	S41 Priority Species	Common	Channels and their banks, including dried out weed rakings.	Maintenance of suitable habitat, install weed baskets where appropriate
Bats <i>Chiroptera spp.</i>	S41 Priority Species	Widespread	Trees, near channels and possibly buildings. Common throughout District.	Creation of artificial roost sites where appropriate
White clawed crayfish <i>Austropotamo bius pallipes</i>	S41 Priority Species	Present but uncommon	Likely absent from District.	Establish baseline data

7.13. Invasive Non-native Species Summary

The IDB has identified the following high risk aquatic and riparian invasive non-native species within the drainage district that are identified as likely to be influenced by, or impact upon the Board’s activities.

Common & scientific name	Location within IDB if known	Year first recorded	Local status / Extent within drainage district	IDB potential for controlling species population or range
Floating pennywort <i>Hydrocotyle ranunculoides</i>	Watercourses close to Lincoln City, mainly.	2010	Present but not extensive within District	IDB management plan and control measures, and partnership working.
<i>Azolla spp.</i>	Widespread on most channels during summer months	2000’s	Widespread on most channels during summer months	IDB management plan and control measures, and partnership working.



New Zealand pygmyweed <i>Crassula helmsii</i>	Common. Easily confused with Azolla spp.	2010	Common within more urban areas with urban watercourses such as Sleaford	IDB management plan and control measures, and partnership working.
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7.14. Water Level Management Plans

Water Level Management Plans (WLMPs) provide a means by which the water level requirements for a range of activities in a particular area, including agriculture, flood defense and conservation, can be balanced and integrated. Guidance for the production of WLMPs by the operating authorities for sites of conservation interest was produced by MAFF/ Defra in 1992, 1999 and 2004. This guidance concentrated on SSSIs, especially those of international importance (SPA or SAC sites).

Where IDBs are the operating authority for sites, they may or may not actively manage the water levels.

North East Lindsey IDB does not have any official water level management plans, however most pumping stations in the district are operated with higher water levels over drier periods in order to enhance watercourse biodiversity



8. Habitat and Species Action Plans

8.3. Introduction

Action plans comprise the objectives, targets and actions that the IDB has identified for each habitat and species to be included within the Nature Strategy. The following sections contain action plans for each of the habitats and species that have been prioritised by the IDB.

8.4. Habitat Action Plans

8.2.1. Reedbed

Reedbeds are important nationally, regionally and in Lincolnshire for plants and animals which are specially adapted to this habitat, including bittern, marsh harrier and reed warbler

National Targets	Local Targets
Targets for reedbeds are to rehabilitate priority areas of existing reedbed (targeting those of 2ha or more); maintain priority areas of existing reedbed by active management; and to create 1,200 ha of new reedbed on land of low nature conservation interest	Targets for reedbeds in Lincolnshire are to establish a baseline for extent and condition of the habitat; maintaining the current extent of the habitat; achieving favourable condition of the habitat on 95% of sites; and expand the area of the habitat by 280 ha. Targets for reedbeds in Nottinghamshire are to maintain current extent, improve condition of existing reedbeds, restore degraded reedbeds and create new areas of the habitat.



8.2.1.1. IDB Objectives

IDB Objectives	
1	Ensure no net loss of reedbed as a result of IDB activities
2	Increase extent of reedbed within the IDB area

8.2.1.2. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Prevent damage to existing reedbed (not including annual maintenance) and ensure that compensation planting takes place if any reedbed is removed during bank works	Note reed stand length and width (m)	Ongoing	IDB Ops	Landowner
2	1b	Allow establishment where possible	Number of potential sites	Ongoing	IDB Ops	Landowner



8.2.2. Wet woodland

Wet Woodlands are important nationally, regionally and in Lincolnshire for plants and animals which are specially adapted to this habitat, including mosses and invertebrates

8.2.2.1. National and Local Targets

National Targets	Local Targets
<p>National targets for Wet Woodlands are to maintain the total extent and distribution of this habitat, create and/or restore new wet woodland on unwooded sites or by conversion of plantations, and to achieve favourable condition in wet woodlands on designated and other sites.</p>	<p>Wet Woodlands occur throughout Lincolnshire but extensive areas are scarce. Large areas of the habitat are confined to a few sites (eg woods on the springlines at the junction of clays with sandstone in the Spilsby area) and there are many smaller examples, such as in and beside old mineral workings and along watercourses. Small stands of wet woodland occur throughout Nottinghamshire and larger stands are scarce but are associated with old mineral workings and mining subsidence.</p>

8.2.2.2. IDB Objectives

IDB Objectives	
1	Identify location and extent of wet woodland
2	Investigate the creation of new wet woodland habitat in the District



8.2.2.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Record in the field the location of stands of wet woodland, and record length and width	Note woodland stand length and width (m)	Ongoing	IDB Ops	N/A
2	1b	Investigate creation of new stands of wet woodland which are not associated with existing stands	Number of potential sites	Ongoing	IDB Ops	N/A



8.2.3. Watercourses

8.2.3.1. National and Local Targets

Watercourses and extensive systems of watercourses are important nationally, regionally and in Lincolnshire for aquatic and riparian plants and animals.

National Targets	Local Targets
There are no national targets specifically for watercourses of the nature of those managed by the Board	Targets for watercourses in Lincolnshire are to achieve favourable condition for all designated stretches of drains, and to restore degraded areas of floodplain, including drains. Targets for watercourses in Nottinghamshire are to collate records and conduct surveys to gather information, to maintain and improve the condition of drains, and to increase liaison with bodies responsible for ditch management

8.2.3.2. IDB Objectives

IDB Objectives	
1	No net loss of length of watercourse within the District
2	Manage water levels and flood risk to benefit agriculture and nature conservation
3	Control non-native invasive species in Board maintained watercourses



8.2.3.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Resist culverting of watercourses and create new watercourses or similar wetland habitats in the same catchment as the culverting, of at least equal quality and extent to that removed by culverting.	Length (m) of watercourse created	Ongoing	Consenting /Planning	
2	1b	Consider changes to water level regime upon request	Number of requests	Ongoing	Environment/IDB Ops	
3	1c	Control non-native invasive species in Board maintained watercourses	Number of control operations undertaken	Ongoing	Environment/IDB Ops	



8.2.4. Flood meadow & washland

8.2.4.1. National and Local Targets

The flood meadow habitat is important nationally, regionally and in Lincolnshire. It is a scarce habitat which is important for plants and lowland breeding waders

National Targets	Local Targets
<p>National targets for Flood Meadows are to maintain the existing extent and quality of the habitat, restore degraded areas, and create new areas of the habitat.</p>	<p>Targets for flood meadows in Lincolnshire (as part of the wider grazing marsh habitat) are to establish a baseline for their extent and condition, to maintain the extent of the habitat in the county, to restore degraded areas, and to create new areas of the habitat. Targets for flood meadows in Nottinghamshire (as part of the wider wet grassland habitat) are to maintain the extent of the habitat in the county, improve the existing areas of the habitat through appropriate management, restore degraded areas, and create new areas.</p>

8.2.4.2. IDB Objectives

IDB Objectives	
1	Identify location and extent of flood meadow habitat and of grassland areas of washland



8.2.4.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Record in the field the location and extent of flood meadow and grassland washland habitat	Flood meadow area (ha)	Ongoing	IDB Ops	N/A



8.2.5. Hedgerows

8.2.5.1. National and Local Targets

Hedgerows are important nationally, regionally and in Lincolnshire and Nottinghamshire for plants and animals that use the habitat. Hedgerows also form excellent extensive and interlinked wildlife corridors across areas of arable dominated land.

National Targets	Local Targets
<p>National targets for hedgerows include the maintenance of the net extent of hedges in the UK; ensure that hedgerows remain, on average, atleast as rich in native woody species; reverse the unfavourable condition of over-managed hedgerows across the UK by reducing the proportion of land managers who trim most of their hedges annually to 60%; halt further decline in the condition of herbaceous hedgerow flora and improve their condition; and achieve a net increase in the length of hedgerows of an average of 800 km per year</p>	<p>Targets for hedgerows in Lincolnshire are to establish a baseline for the exiting extent and condition of ancient and species-rich hedges; to maintain the current extent of ancient and species-rich hedges; to achieve favourable condition of ancient and species-rich hedges; and to restore/create 100km per year of hedgerows. Targets for hedgerows in Nottinghamshire are to develop an inventory of ancient and species-rich hedges; prevent further loss of ancient and species-rich hedges; achieve favourable condition of ancient and species-rich hedges; and increase the net length of ancient and species-rich hedges.</p>

8.2.5.2. IDB Objectives

IDB Objectives	
1	Ensure no net loss of hedges as a result of IDB activities
2	Identify location and extent of hedgerows alongside Board maintained watercourses



8.2.5.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Identify location and extent of hedgerows alongside Board maintained watercourses	Length (m) of hedgerows surveyed	If required	IDB Ops	Landowners
2	1b	Ensure no net loss of hedgerows alongside Board maintained watercourses through IDB operations	Length (m) of hedgerow remaining intact	Ongoing	IDB Ops	Landowners



8.3. Species Action Plans

8.3.1. Water Vole

8.3.1.1. National and Local Targets

Water voles occur throughout Britain but they are confined mainly to lowland areas near water. Once nationally common and widespread, this species has suffered a significant decline in numbers and distribution, mainly thought to be due to increasing numbers of American Mink (*Neovison vison*). As reaches of rivers, stream and drains become unsuitable for habitation, or water voles are lost from, the distribution of water voles becomes discontinuous and existing sites become isolated and vulnerable.

The same picture holds true in a regional context but water voles remain widespread in Lincolnshire, with little or no evidence of the severe national decline being seen. Water voles are thought to be scarce in Nottinghamshire, reflecting the national picture, but data is sparse and more information is needed.

National Targets	Local Targets
National targets for water voles are to maintain the current distribution and abundance of the species in order to arrest the decline in Britain, and to restore water voles to their former widespread distribution	Targets for water voles in the Lincolnshire are to maintain the current distribution of the species. Targets for water voles in Nottinghamshire are to maintain the current extent of water voles, and restore water voles to their former widespread distribution.

8.3.1.2. IDB Objectives

IDB Objectives	
1	Ensure routine maintenance (e.g. mowing) of all watercourses is carried out sympathetically for water vole



2 Investigate the creation of new water vole habitat

8.3.1.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Continue with current system of undertaking pre-works water vole surveys. Bank slip repair and watercourse culverting must never be undertaken without a pre-works survey to determine water vole presence/absence	Distance (km) of watercourses surveyed	Ongoing	Environment	-
2	2a	Investigate the creation of new water vole habitat	Identify suitable locations for creation of water vole habitat, working with adjacent landowners to increase the area of habitat available for voles	Ongoing	Environment	Landowners



8.3.2. Otter

8.3.2.1. National and Local Targets

Formerly widespread throughout the UK, the otter underwent a rapid decline in numbers from the 1950s to 1970s and was effectively lost from midland and south-eastern counties of England by the 1980s. Populations remained in Wales, south-west England and much of Scotland, where sea loch and coastal colonies comprise one of the largest populations in Europe. The decline has now slowed and sightings are being reported in former habitats, due to natural spread and/or releases, however persecution still remains an issue.

Otters are increasingly common in a regional context and are spreading in Lincolnshire and Nottinghamshire in terms of distribution and numbers.

National Targets	Local Targets
<p>National BAP Targets for otters are to maintain and expand existing otter populations, and to restore breeding otters to all catchments and coastal areas where they have been recorded since 1960.</p>	<p>Targets for otters in Lincolnshire are to maintain the existing populations, maintain the existing extent of suitable habitat, survey the Ancholme valley in order to determine if they are present, and to expand the range of otters in the county to all catchments if not found in the Ancholme valley. Targets for otters in Nottinghamshire are to establish a baseline by undertaking surveys, restoring otters to rural catchments and enhancing riparian habitat to encourage expansion of otters.</p>



8.3.2.2. IDB Objectives

IDB Objectives	
1	Collection and maintenance of otter records within the Board’s District
2	Investigate the creation of otter holts in the District

8.3.2.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Continue with current system of employees and contractors recording otters	Recording via the iRecord app or other preferred method	Ongoing	IDB Ops/Environment	-
2	2a	Investigate the locations of suitable sites of creation of holts	Number of sites identified	Ongoing	IDB Ops/Environment	Landowners



8.3.3. Reed Bunting

8.3.3.1. National and Local Targets

Reed buntings inhabit reedbeds and other wetland habitats, as well as drier farmland sites such as overgrown ditches and hedges. The species is found throughout Britain and Ireland, although it is more scarce in the uplands and the far north and west. There are also some gaps in distribution elsewhere but with no clear pattern. A decline in numbers has occurred in recent years. In Britain, BTO census results show a relatively high population level from the late 1960s to the mid-1970s, followed by a decrease of more than 50% to a new, more stable lower level during the early 1980s. Reed bunting is not a species of conservation concern elsewhere in Europe where it is common and widespread.

Reed bunting is a common resident and passage Lincolnshire and Nottinghamshire bird, although there has been a decline in recent years.

National Targets	Local Targets
National targets for reed buntings are to in the short term, halt or reverse the decline in numbers and, in the long term, recover numbers in wetland and farmland habitats.	Targets for reed buntings, as part of a suite of lowland farmland birds, in Lincolnshire are to determine current population extent and status, determine appropriate future action, and to identify important breeding sites and to ensure their appropriate management.

8.3.3.2. IDB Objectives

IDB Objectives	
1	Collection and maintenance of reedbunting records within the Board's District
2	Investigate the creation of new marginal habitat for reed buntings in the District



8.3.3.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Continue with current system of employees and contractors recording reed bunting	Recording via the iRecord app or other preferred method	Ongoing	IDB Ops/Environment	-
2	2a	Investigate potential sites for increasing the extent of marginal common reed	Number of sites identified	Ongoing	IDB Ops/Environment	Landowner



8.3.4. Barn Owl

8.3.4.1. National and Local Targets

Barn owls are widespread throughout the UK except for the far north of Scotland and the larger mountainous areas. Barn owl is a common resident Lincolnshire bird, thanks to the work of Lincolnshire drainage authorities installing hundreds of nesting boxes, but has suffered a decline in Nottinghamshire.

National Targets	Local Targets
None	Targets for barn owls, as part of a suite of lowland farmland birds, in Lincolnshire are to determine current population extent and status, determine appropriate future action, and to identify important breeding sites and to ensure their appropriate management. Targets for barn owls in Nottinghamshire are to establish a baseline by undertaking surveys, maintain the current distribution of the species in the county, and create nest sites and enhance foraging habitat.

8.3.4.2. IDB Objectives

IDB Objectives	
1	Collection and maintenance of barn owl records within the Board district
2	Manage and maintain current nest box sites, and investigate suitable locations for new boxes



8.3.4.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Continue with current system of employees and contractors recording barn owl	Recording via the iRecord app or other preferred method	Ongoing	IDB Ops/Environment	-
2	2a	Identify suitable locations for barn owl nesting boxes and maintain those already in situ	Number of sites identified	Ongoing	IDB Ops/Environment	Landowners and Wildlife Conservation Trust



8.3.5. Grass Snake

8.3.5.1. National and Local Targets

Grass snake is a UK Priority Species. Grass snake is not included within the Lincolnshire or Nottinghamshire BAPs.

Grass snakes are found throughout England but becoming scattered to the north, often being seen close to water. They are found in the lowland parts of Wales and are only scattered and in the lowlands in Scotland. Grass snake is widespread in Lincolnshire, including the Fens, and is widespread in Nottinghamshire with some gaps in distribution centred on the sandstone.

National Targets	Local Targets
None, however Grass snakes are protected under the Wildlife and Countryside Act 1981 (as amended).	None



8.3.5.2. IDB Objectives

IDB Objectives	
1	Collection and maintenance of grass snake records within the Board District
2	Maintain and increase population by promoting suitable habitat

8.3.5.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Continue with current system of employees and contractors recording grass snakes	Recording via the iRecord app or other preferred method	Ongoing	IDB Ops/Environment	
2	2a	Continue current weed raking practices	Length of channel weedraked (km)	Ongoing	IDB Ops/Environment	



8.3.6. Eel

8.3.6.1. National and Local Targets

Eel is a UK BAP Priority Species and are found throughout the UK and are widespread in Lincolnshire and in most of Nottinghamshire.

National Targets	Local Targets
None	None

8.3.6.2. IDB Objectives

IDB Objectives	
1	Collection and maintenance of eel records within the Board District
2	Comply with The Eel Regulations (England and Wales) 2009



8.3.6.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Continue with current system of employees and contractors recording eels	Recording via the iRecord app or other preferred method	Ongoing	IDB Ops/Environment	
2	2a	Identify which structures are critical to passage of eels in the IDB watercourse systems and consider eel friendly pumps/passes in these areas	Number of structures	Ongoing	IDB Ops/Environment	Environment Agency



8.3.7. Toad

8.3.7.1. National and Local Targets

The common toad is a UK Priority Species.

Toads are found throughout the UK. The common toad is widespread in Nottinghamshire and in Lincolnshire too, but becomes more scarce in the Fens.

National Targets	Local Targets
None, however Toads are listed under Schedule 5 of the Wildlife and Countryside Act (1981) and as amended.	None

8.3.7.2. IDB Objectives

IDB Objectives	
1	Collection and maintenance of toad records within the Board District



8.3.7.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Continue with current system of employees and contractors recording toad	Recording via the iRecord app or other preferred method	Ongoing	IDB Ops/Environment	



8.3.8. Bats

8.3.8.1. National and Local Targets

Some species of bats are UK Priority Species and all species are grouped as Priority Species in Lincolnshire. Bats are widespread in Britain and also in Lincolnshire where 11 species have been recorded.

National Targets	Local Targets
National targets for bats include the maintenance of existing populations and geographical ranges, and restoring populations to earlier levels	Targets for bats in Lincolnshire are to survey and monitor the status of populations, to maintain and enhance existing populations, enhance bat foraging habitats, promote understanding of bats, and encourage appropriate building techniques.

8.3.8.2. IDB Objectives

IDB Objectives	
1	Collection and maintenance of bat records within the Board District
2	Investigate suitable roosting sites increase



8.3.8.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Continue with current system of employees and contractors recording bats	Recording via the iRecord app or other preferred method	Ongoing	IDB Ops/Environment	-
2	2a	Assess suitability of Board buildings for bat box siting	Number of buildings assessed	Ongoing	IDB Ops/Environment	Lincolnshire Bat Group
2	2b	Commence installation programme of bat boxes	Number of boxes installed	Ongoing	IDB Ops/Environment	Lincolnshire Bat Group



8.3.9. White-Clawed Crayfish

8.3.9.1. National and Local Targets

The white-clawed crayfish is a UK Priority Species and is a Priority Species in Lincolnshire and Nottinghamshire.

This species is still relatively widespread in the UK but there has been a severe recent decline. There are still populations in Nottinghamshire in the headwaters of one watercourse and in two standing waterbodies but none of these are within the Board area. In Lincolnshire white-clawed crayfish are now restricted to a short length of the Upper River Witham and tributaries.

This species is listed in Appendix III of the Bern Convention and Annexes II and V of the EC Habitats Directive. It is classed as *Globally Threatened* by IUCN/WCMC. It is protected under Schedule 5 of the Wildlife & Countryside Act (1981 and as amended) in respect of taking from the wild and sale.

This species is very rare in the Board district, only occurring in the extreme south. The information is not available to state whether there has been a significant trend in the population in the recent past but in line with the national picture there is likely to have been a decline.

National Targets	Local Targets
<p>The national target for white-clawed crayfish is to maintain the present geographical distribution of this species.</p>	<p>Targets for white-clawed crayfish in Lincolnshire are to undertake surveys of suitable habitats, to maintain the Upper Witham population, to limit the spread of non-native crayfish species, to carry out habitat enhancement schemes within the Upper Witham.</p> <p>Targets for white-clawed crayfish in Nottinghamshire are to maintain the current county distribution of the species, and to establish the current distribution of the species in the county then use this information to establish a target for expansion – applicable to UWIDB</p>



8.3.9.2. IDB Objectives

IDB Objectives	
1	Collection and maintenance of all crayfish records within the Board district
2	Contribute to habitat enhancements schemes in the Upper Witham

8.3.9.3. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Continue with current system of employees and contractors recording white-clawed crayfish and non-native crayfish	Recording via the iRecord app or other preferred method	Ongoing	IDB Ops/Environment	
2	2a	Work with partners to identify suitable sites, create suitable habitat and undertake suitable management	Number of schemes	Ongoing	IDB Ops/Environment	EA/Natural England

9. Procedural Action Plan



9.2. Introduction

A number of procedural targets and actions have been established to better integrate biodiversity considerations into IDB practices and procedures. These are intended to integrate biodiversity considerations into IDB practices and procedures.

9.3. Objectives and Targets

IDB Objectives	
1	Promote environmental best practice in all Board functions
2	To improve IDB employees knowledge of biodiversity support through training
3	Promote the Board’s environmental work



9.4. IDB Actions

Action Plan						
Objective ref.	Action number	Action	Measurable / Indicators	Completion date	Action Lead	Partners
1	1a	Produce a manual of best practice within 6 months from the date of this plan Ensure all staff including contractors have received high-level biodiversity training within 6 months from their start date or as part of their induction, and refresher training provided annually.	Publication of manual on website	Ongoing	Environment	
2	2a	Ensure all operative staff have received biodiversity training within 6 months from their start date or as part of their induction, and refresher training provided annually.	Numbers of staff and trained	Ongoing	Environment	
3	3a	Publicise major and successful examples of Nature Strategy related work undertaken by the Board	Number of articles published	Ongoing	Environment	ADA



10. Implementation

The actions within the Nature Strategy will be executed via the following means:

- 1) The actions which can be delivered through adaptations or inclusions to general maintenance programmes will be identified and integrated accordingly / into the IDBs best practice manual. From this, maintenance schedules will be drawn up and completed activities communicated via returned job cards or similar.
- 2) Actions which require independent and additional execution such as bat and bird box erection and surveys or training will identified, resources planned and engaged and / or planned in to the relevant resources' work schedules.
- 3) Actions which can be executed through capital works programmes will be integrated into the relevant project plans.
- 4) Actions which can be delivered through collaboration with partners will be formally agreed in writing with such partners with responsibilities, timescales and reporting requirements defined.
- 5) Actions which can be delivered through developer or consented works will be identified and integrated into project plans.

11. Monitoring

Appropriate indicators have been set for each of the IDB's biodiversity actions. Indicators have been chosen which provide the IDB with ways of measuring both the current status of biodiversity and also ways of measuring achievements in delivering biodiversity objectives and targets. The individual action plans set out the indicators and measurables which will be used to assess progress and execution against the plan. The IDB will routinely monitor biodiversity actions using the indicators and measurables and will review actions and indicators at least annually.

The overall plan should be updated at least every 5 years but is a dynamic document so may change more frequently for example in the light of monitoring outcomes.

12. Reporting

The Board is responsible for ensuring that progress against the Strategy targets are routinely reported, at least annually, at Board meetings to allow the Board to discuss and review activity and to modify actions to meet the objectives where necessary.

Annual summary progress reports will detail which actions have been progressed according to the plan, any new opportunities identified, risks and issues affecting the objectives or actions, and the contribution actions have made towards achieving the objectives. Recommendations will be made in the light of the monitoring outcomes.

Making this information available to a wider audience is important in increasing the understanding of the importance of the Boards' actions regarding biodiversity and inspiring people about biodiversity. As such,



the IDB will make the summary reports available externally in the following ways:

- Provided to conservation partners to assist with further local biodiversity conservation planning;
- Provided to local authorities in order to contribute towards their legislative biodiversity reporting requirements including the NERC 2006 Act, Habitats Directive, Environment Bill and the Local Nature Recovery Strategies;
- The Local Biological Records Centre.

13. Useful links

Greater Lincolnshire Nature Partnership – glnp.org.uk

Joint Nature Conservation Committee – jncc.gov.uk

DEFRA - www.gov.uk/government/organisations/department-for-environment-food-rural-affairs

Association of Drainage Authorities (ADA) – ada.org.uk

