



Water
Management
Alliance



A Working Alliance

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Defenders of the Lowland Environment



Water Management Alliance

A Working Alliance



The Water Management Alliance (WMA) is a Consortium of 5 Internal Drainage Boards (IDBs) operating in East Anglia. Members of the Consortium include **Broads IDB, East Suffolk IDB, King's Lynn IDB, Norfolk Rivers IDB** and **South Holland IDB**.

The members are independent, autonomous and democratically accountable statutory bodies that seek to protect some 124,000 hectares of East Anglia, between Spalding and Lowestoft. We have access to over 900 years of experience protecting and defending our area.

Defenders of the Lowland Environment

Our vision is to make each Board's Drainage District and water catchment area a safe and secure place to live, work, learn and have fun, as a model of sustainable living in flood risk areas.

Protecting People and Property

Who needs drainage?

No drainage – no land

No land – no food

No food – no people

No people – no problems

Who needs drainage?



Flood Risk Management

Our priority is to reduce flood risk by focusing on the safety and security of people, property, livelihoods and the natural environment. Necessary capital improvement works and regular maintenance of the drainage infrastructure are vitally important services that we provide to help keep the Boards' Internal Drainage Districts safe and secure.

Working with the Environment

The Water Management Alliance Conservation Policy sets out how the Boards within the Alliance intend to meet the duties placed on Internal Drainage Boards under the provisions of the Land Drainage Act 1991 and other relevant legislation, to undertake maintenance and water level management in a way that is compatible with nature conservation interests. The production of the Standard Maintenance Operations for each Board goes into more detail of how the policy is transferred into practical management and maintenance. This is supported by a number of fact sheets.



www.wlma.org.uk



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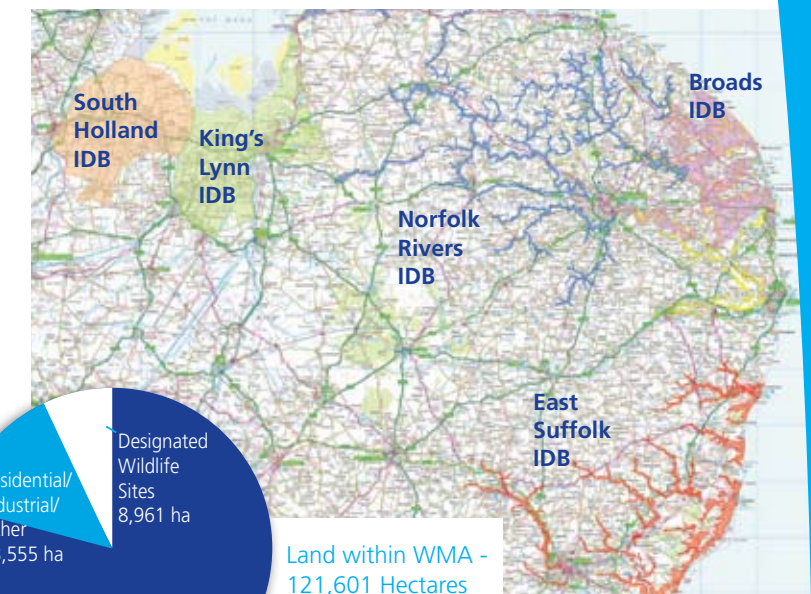
Working in Partnership with Local Authorities and Policy Makers



The Broads Authority

The Broads Authority, as a member of the National Park family, works to integrate the potential of the natural environment, cultural heritage, recreation and navigation in Britain's largest protected lowland wetland. Effective management of The Broads catchment results in water quality, resources and biodiversity objectives being met. These objectives are met through partnership working with organisations, such as the Water Management Alliance. These partnerships deliver long term benefit for the economies, communities as well as the special landscape and wildlife of The Broads.

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Borough Council of King's Lynn & West Norfolk

Borough Council of King's Lynn & West Norfolk



The Water Management Alliance is crucial to the development of King's Lynn as a regional centre which is a designated Growth Point. The Borough Council of King's Lynn & West Norfolk looks forward to working with the Alliance in managing surface water and drainage issues in order to facilitate the development of the town.

Working in Partnership with Local Authorities and Policy Makers

North Norfolk District Council

The management of the drainage systems is vital to sustainable land management and to our communities in low lying areas. The Council continues to work closely with the Water Management Alliance recognising the value of local knowledge coupled with a strategic approach.



Environment Agency

We work well with the Water Management Alliance and its constituent the IDB in Suffolk. We feel they have a key role to play and look forward to working with them in the future.



South Norfolk District Council



The importance of maintaining and improving the drainage systems is highlighted increasingly these days with the ever more frequent extreme weather events, such as heavy rain. The IDB's work in assisting South Norfolk Council and landowners to do this is paramount in ensuring that the risk of flooding to our residents is minimised.

Great Yarmouth Borough Council



Great Yarmouth Borough Council is delighted to support and endorse the important work carried out by the Water Management Alliance and its constituent authorities.

Norfolk County Council



Norfolk County Council works in partnership with the WMA as part of our commitment to protecting and enhancing the environment.

South Holland IDB

Defenders of Lincolnshire's Fens



Bread Basket of Britain

The South Holland Internal Drainage District covers 38,443 hectares of flat low lying fen and reclaimed marsh land in South Lincolnshire. In excess of 51,000 people reside in the district, and there are 35,396 hectares of farmland in the area, a large proportion of which is intensively farmed Grade 1 arable land, some of the best quality and most productive in the country.

Prioritized Drain Maintenance

The continued use of this area by those who live or work in it, and the local economy, are dependent on the effective maintenance of this drainage system to prevent homes, workplaces, critical public infrastructure and agricultural land from becoming unusable. Due to the nature of the area, with land levels below high tide level, and very shallow gradients, the maintenance regime has to be intensive. As the Board maintains over 700 km of watercourse it is important to prioritize the work and secure access to develop a systematic and methodical way of working.

The priority of drains is based on the amount of development for which they cater and the Board's infrastructure.

The High Priority Drains are those that have

- At least 50 households at risk from flooding per linear km of channel
- Pumping stations
- Tidal sluices
- Outfalls



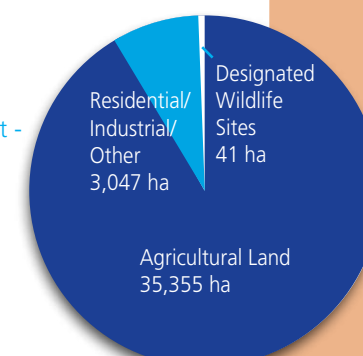
The Spider

The "Spider" helps keep the waterways clear of vegetation and maintains just under half of the Board's watercourses. It is one of only three such machines in the country and it actually sits in the ditch so it does not damage the surrounding crops and the driver has a clear view of sensitive obstacles such as bird's nests.

The Right Balance

The Board's watercourses form valuable nature corridors in the Fenland landscape, providing habitat for a wide range of wildlife including aquatic birds, mammals and insects. There is, therefore, a fine balance between providing an adequate standard of drainage to the area, whilst preserving habitat for as long as possible in the nesting season. When it is practical, the Board leaves a fringe of vegetation along at least one side of the drain to encourage Reed Buntings and Reed Warblers.

Land within South
Holland IDB District -
38,443 Hectares



King's Lynn IDB

Defenders of Norfolk's Fens

Much of the area is below Sea Level

The land protected by the King's Lynn Internal Drainage Board is at considerable theoretical risk of river flooding and inundation from the sea. However, the actual risk is substantially reduced by the works carried out by the Board in partnership with Natural England and the Environment Agency. The Board has a combined network of 560 km of drain, 11 pumping stations protecting some of the most rapidly developing conurbations in the country and some of the most fertile arable land in Europe. The area is home to around 100,000 people and a thriving local economy, which is growing fast. The area is both locally and nationally important and worth the cost of defending and protecting, now and in future.



Protecting People and Property

King's Lynn straddles the River Great Ouse, which flows into The Wash. It is home to over 35,000 people and plays an important economic role within the area.

The Pierpoint Pumping Station protects King's Lynn's Hardwick Industrial Estate. The four massive electric pumps have a combined capacity of 45,000 gallons a minute, which would fill your car petrol tank up 68 times every second. The station protects property worth over one billion pounds and cost £186,000 to build in 1975.

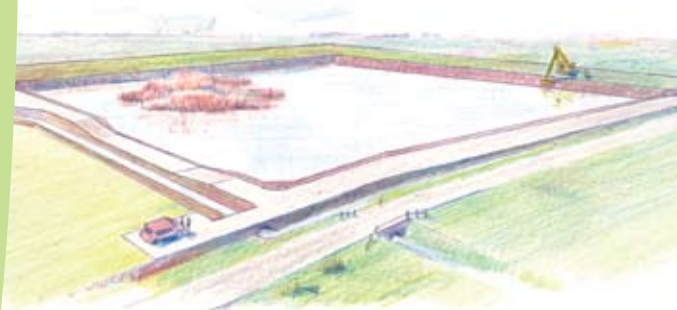


Looking Forward to the Next 50 Years

Smeeth Lode Catchment Scheme

The Smeeth Lode catchment lies on the edge of Wisbech serving parts of the town and surrounding villages, with a catchment population of 11,000.

Heavy rainfall during March/April 1998 resulted in flooding to land in the Black Ditch area. The Smeeth Lode Scheme has been developed to serve and protect future development in the area.



The proposed works include:-

- Construction of 2 flood storage areas
- New pumping station
- Improvements to drainage network to enable some water storage.

This £11 million scheme will raise the standard of protection for the whole of the catchment.

www.wlma.org.uk



Gaywood Flood Alleviation Project

King's Lynn Internal Drainage Board is to reconnect the Gaywood River to its former flood plain to safeguard King's Lynn from flooding.

Land within
King's Lynn IDB
District -
35,771 Hectares

Residential/
Industrial/
Other
8,166 ha

Designated
Wildlife
Sites
450 ha

Agricultural Land
27,155 ha

Currently, the Gaywood River discharges effectively into the Great Ouse near the Boal Quay through a tidal flap on the Quay side when the tide is low. The river is only put under pressure when the area has received an excessive amount of rainfall and the tide is high. Therefore, only when this happens will water be spilled off the Gaywood River and allowed to settle in the flood plain. Once the river has returned to normal flows, the water will be drained off the site back into the river system.

Within the Gaywood Flood Alleviation Project there will be opportunities to create new wildlife habitats in the Gaywood Valley that will enhance the amenity value of the area.

Drains – Engineering Structures that also provide a valuable habitat

Drains and ditches have the potential to provide excellent corridors and aquatic and terrestrial habitats for wildlife.

Regular maintenance of the Board's "main drains" is essential for land drainage and flood risk management, which is their primary purpose.

Ditches and drains in intensively farmed arable land are usually regarded as being of less ecological interest than those of grazed pastures, but the very fact they are surrounded by intensively managed land means that they may provide the richest habitats in these arable areas.



It is important that our watercourses are maintained in such a way as to present the minimum impact on the wildlife within but ensure adequate and unimpeded drainage for the safety and security of people and property in the catchment itself.

The Standard Maintenance Operations provides guidance on the appropriate standards to be achieved when undertaking maintenance works, so that work is carried out sympathetically, and with biodiversity interests kept firmly in mind, whilst obviously taking into consideration the operational needs of the catchment served.



Working in Partnership for the Natural Environment

Natural England

Natural England is here to conserve and enhance the natural environment, for its intrinsic value, the wellbeing and enjoyment of people and the economic prosperity that it brings. We work closely with the Water Management Alliance in the restoration and enhancement of wildlife sites and the promotion of biodiversity across their area.



The Hawk & Owl Trust

The Wildlife Conservation Partnership is delighted to be working in partnership with the Water Management Alliance on its joint project to restore Barn Owl numbers and for the enthusiastic support of Board Members and other landowners and farmers for this conservation scheme.



Norfolk Biodiversity Partnership

The Norfolk Biodiversity Partnership seeks to conserve, enhance and restore the county's biological wealth. The Water Management Alliance is a key member of the Partnership, and plays a particularly important role on its Waterbodies and Wetlands Working Groups. WMA is also actively involved in implementing a wide range of biodiversity action plans for some of the county's most threatened species and habitats.



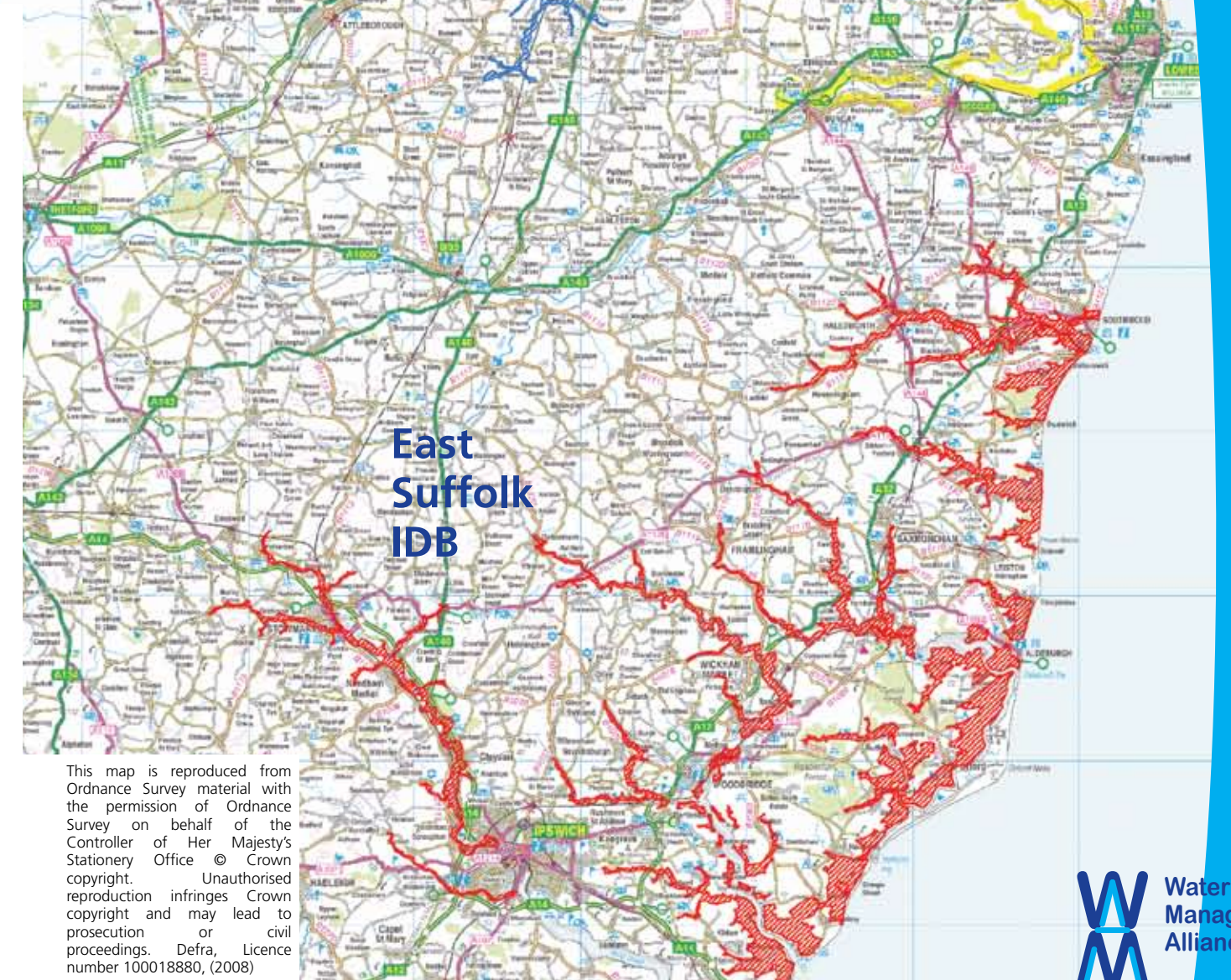
The Wash and North Norfolk Coast European Marine Site Management Scheme

As a Relevant Authority partner of The Wash and North Norfolk Coast European Marine Site (EMS) Management Scheme, the WMA makes an important contribution to safeguarding conservation interest features in, and encouraging sustainable use of, the Wash and North Norfolk Coast EMS by working with other partners in the management scheme to achieve statutory conservation goals.



Norfolk Wildlife Trust

Norfolk Wildlife Trust works to protect the natural environment as well as being a significant landowner in many wetland areas of the county. The Trust has an excellent working relationship with the WMA at both a strategic level and on the ground where we are attempting to restore and enhance wetland habitats in partnership.



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Norfolk Rivers IDB

Defenders of Norfolk's River Valleys

Protecting the Rural Economy in a Diverse Landscape

The Norfolk Rivers and their tributaries are set mainly within an undulating, rolling rural environment, running mostly through a mosaic of prime arable land, grazing marsh, woodland and environmentally sensitive designated areas. Some of the tributaries are also integral in draining highly developed or industrial areas of the Norfolk towns such as Fakenham, Aylsham and Wymondham.

Working with Nature and Gravity

The Norfolk Rivers area has a variety of watercourses, with only a small percentage classified as classic field drains. Many of the watercourses are diverse and stream-like with varied flow regimes and substrate types providing rich and distinct aquatic and semi-aquatic habitats. The landscape through which the watercourses have become carved reveals a unique gravel substrate, which provides a distinctive habitat for fish such as brown trout, dace and chub, all of which require clean well oxygenated gravels for spawning. The margins of watercourses with a diversity of emergent and submerged plants also provide a rich and diverse environment for a miscellany of invertebrates and other species, including water vole, grass snakes and amphibians.

There are several environmentally important sites for wildlife within the Norfolk Rivers area, some of which require water levels to be maintained at particular heights to protect the flora and fauna of the site. These water levels are set within Water Level Management Plans and have been agreed with the WMA and Natural England.

The Norfolk Rivers area is distinct in having two classic chalk stream rivers, within its boundaries; the Upper Nar and the upper reaches of the River Wensum. The whole of the River Wensum and its tributaries is protected under both British and European legislation, affording protection on some nationally endangered species, namely Otter, Brook Lamprey, Bullhead, White-clawed Crayfish and Water Crowsfoot. The River Nar is also protected by British legislation. Both the rivers Wensum and Nar require assent from Natural England before any work can be carried out on them or their tributaries.

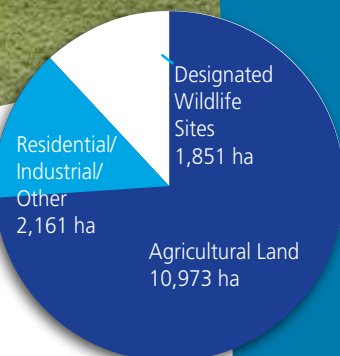
The Standard Maintenance Operation document is essential when carrying out works on sites of high conservation status, such as Sites of Special Scientific Interest but is also just as important for carrying out works on all other watercourses within the Norfolk Rivers area; it provides guidance on the appropriate standards to be achieved when undertaking maintenance works, so that work is carried out sympathetically, and with biodiversity interests kept firmly in mind, whilst obviously taking into consideration the operational needs of the catchment served.

Partnership Working Toward Improved Biodiversity

The WMA works in conjunction with Norfolk's Biodiversity Partnership to improve our understanding of the needs of wildlife in the Norfolk Rivers area and demonstrate the ways in which our actions serve to conserve or enhance the natural environment and contribute to local Biodiversity Action Plans for various species or habitats. The Mid-Norfolk Mink control project is an example of this is. Established in 2004, this partnership project works with landowners on the rivers Wensum and Nar to control mink for the benefit of water voles and other wildlife. The results have been positive with over 400 mink being caught and signs that the water vole populations are increasing.

Furthermore on the River Nar water voles are returning to the river.

Land within Norfolk Rivers IDB District - 14,985 Hectares



Broads IDB



Defenders & Water Managers in the Broads

The Broads Internal Drainage Board area includes some of the most important environmental assets and wonderful habitat in the world and some of the finest grazing land in the country. The area is home to around 50,000 people, a thriving local economy and a hugely popular tourist destination that attracts visitors from around the globe.

Many of the ditches within Broadland are of outstanding importance for nature conservation and show a transition from brackish to freshwater conditions. Many nationally scarce freshwater plant species such as water soldier and several pondweed species are present within many of the IDB drains. The area is also home to many Biodiversity Action Plan Species and Habitats. Working practice is important in trying to conserve these designated features of interest whilst still maintaining the important drainage requirements of the Broadland area.



Photo: Jeremy Halls, BESL

Safeguarding the Water Need

Halvergate Marshes – working to improve the supply and quality of water to an internationally important wildlife site

The Broads Internal Drainage Board has been involved for many years in the management of water for farming and conservation interests within its district. This has enabled all landowners to enjoy the use of their land for whatever purpose they may deem necessary to meet their needs. Grazing is predominant within the Boards district and arable farming is still carried out on the higher sections of marsh area. The Board attempts to deliver the level of service required for both these regimes.

It has been more and more difficult over the past decade to ensure that the water quality and quantity, together with the appropriate level, has been reached to meet grazing needs and conservation specifications. Therefore, the Board, in conjunction with Natural England and the Broads Authority, developed a Strategy for the appropriate supply of water to meet both needs.

A water balance model was developed which calculated the depth of water in the dykes for any month. This is done by comparing the inputs (i.e. rainfall) with the outputs (i.e. evaporation and evapotranspiration rates, which are calculated using rainfall, the weather conditions, soil type and the soil moisture deficit left over from the previous month, if any). The water balance model was then used to assess the probability, by month, of the prescription water levels being met.



Balancing the Needs of Agriculture, the Economy and Natural Environment

Hickling Broad

The scheme works involved the diversion of an ochre laden low level drain at Willow Farm, Stubb Road, Hickling from its current route to the Commissioner's Drain to Eastfield Pumping Station.

The system used to rely upon a pump managed by Norfolk Wildlife Trust (NWT) to raise the water from the low level arable system, through the higher level channels in the Sites of Special Scientific Interest (SSSI) and then to the main IDB pump. The scheme now functions by gravity and obviated the need for the NWT pump and reduced ochre levels into the SSSI.

The works consisted of 2,400m of improved drainage channel, from Hickling Hill Common, behind the defences on the north side of Hickling Broad, then north to the Commissioner's Drain, crossing Stubb Road in a 1m diameter culvert and associated manholes, headwalls etc. Part of the new drain has a berm on one side to encourage reedbed growth to aid in the natural filtering out of some of the ochre as it moves through the system.

The reason for the scheme was the implementation of the agreed Water Level Management Plan encompassing Hickling Broad Marshes, part of the Upper Thurne Broad and Marshes SSSI.



Land within Broads IDB District - 18,988 Hectares



East Suffolk IDB

Defenders of Suffolk's River Valleys

Most Productive Horticultural Land

The East Suffolk Internal Drainage District's area of 13,414 hectares (33,147 acres) covers the valleys of the rivers Blyth, Minmere, Alde, Deben and Gipping. Within this area the Board manages 97km (61 miles) of watercourses including 10 pumping stations.



An Area of Outstanding Natural Beauty

Four of the river valleys, Blyth, Minmere, Alde and Deben, within the East Suffolk IDB fall within the Suffolk Coasts and Heaths Area of Outstanding Natural Beauty. Where the rolling arable landscape becomes one of contrast - marshes, estuaries, heathland, forest and farmland. This outstanding landscape is fundamentally dependent on the maintenance of effective drainage and flood protection works.

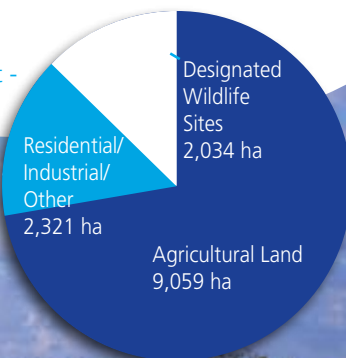


Defence and Protection – Now and for Future Generations

The Board's area includes some internationally important assets, most notably Minmere National Nature Reserve and many areas of outstanding natural beauty, beloved of landscape artists, so that it is an immensely popular tourist destination, which attracts visitors worldwide. The District's drainage serves some of the most productive horticultural land in the Country and is surrounded by a vigorous, diverse local economy. The area's local and international importance warrants the cost of its defence and protection, now and for future generations.



Land within East Suffolk IDB District - 13,414 Hectares



Working in Partnership with Landowners



Beckhithe Farms

The Water Management Alliance plays a very important role in managing water levels on our marshes, enabling them to be grazed and improving the wildlife habitat.

NFU – East Anglia

Rising world demand coupled with climate change has made UK food and energy security important once more. The work of IDBs such as the Water Management Alliance is crucial in helping to ensure that water is managed in a sustainable way so that highly productive land is protected from flooding.



Working in Partnership with Suppliers and Service Providers

T H Quirk

As partners with the Water Management Alliance, T H Quirk are committed to the provision of quality flood defence and water management services. Acting as main contractors on major projects with strict environmental requirements we enjoy a happy and positive working relationship with the WMA.



D C Hunt Engineers Ltd

D C Hunt Engineers Ltd are very pleased to have been working with the Internal Drainage Board and Water Management Alliance for over 30 years and welcome this opportunity to endorse the WMA's work.



Faber Maunsell

Faber Maunsell are pleased to be working with the Kings Lynn Internal Drainage Board to identify and implement works required over the next 100 years. The improvement works take into consideration increases in development and climatic changes in accordance with Board Policy. The works will meet the drainage needs of landowners and provide benefits for wildlife and the wider environment where economically justifiable.



Hannah Reed

The Alliance and their predecessors have always been pro-active and innovative in promoting good practice and delivering management services to their Boards. Hannah-Reed enjoy collaborating with clients who care about quality, and we have successfully delivered a number of capital works projects and strategies in partnership with the Alliance.



Oriel Systems

Oriel Systems are pleased to be able to assist in providing remote monitoring and control solutions to the Water Management Alliance, especially in such an environmentally sensitive area such as the Halvergate Marshes where it is vitally important to monitor salinity levels and control water levels.



Association of Drainage Authorities

ADA is the membership organisation for those involved in water level management. The Water Management Alliance and its constituent Internal Drainage Boards are valued members of ADA, who work closely with the Association to promote and deliver flood risk management across their area for homes, businesses, infrastructure and food production, as well as beautiful wild places.





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Flood Risk Managers of East Anglia's Varied Landscape