

# BROADLAND FLOOD ALLEVIATION PROJECT



## PROTECTING BROADLAND

### Flood alleviation improvements for Womack Water to Hickling Broad (Compartment 6 Phase I) Public Consultation September 2009

#### Site description

In May 2001 Broadland Environmental Services Limited (BESL) was awarded a long-term contract by the Environment Agency to improve and maintain flood defences in Broadland. The Agency's approach to flood alleviation in Broadland was adopted in the 1990's and is based on a strategy consisting mainly of bank strengthening and erosion protection in order to reduce the risk of banks breaching. BESL updated this strategy and is now carrying out improvement works throughout 40 individual flood compartments in Broadland.

The major improvement works will be undertaken during the first 10 years of the Project; thereafter the banks will be subject to regular condition monitoring and maintenance works as required.



Biological diversity in the marshes

#### Consultation

This leaflet has been prepared as part of an ongoing process of consultation to inform you about BESL's proposals and to seek your views on them.

The purpose of this consultation document is to:

- Explain the range of flood defence options that BESL can consider;
- Outline our preferred flood defence proposals at this stage;
- Invite your views on these proposals; and
- Ensure, from the responses we receive, that we are aware of any specific local issues that ought to be considered as we go on to develop the proposals in greater detail.



Norfolk Hawker

BESL will carefully consider any comments it receives, seeking clarification and incorporating changes where necessary before finalising its plans. The results of this consultation will play an important part in BESL's planning application for the proposals. Feedback from this consultation will be contained in the planning application documents.

A questionnaire is provided with this leaflet. If you have not received one, or if you would like an electronic copy of the questionnaire by email, please contact Angela Rowe at the address given at the end of this document. Alternatively, all consultation documents produced by BESL can be downloaded from the Broadland Flood Alleviation Project (BFAP) website [www.bfap.org](http://www.bfap.org).



Floodwall behind chalets



## Site description

Compartment 6 is located on the right bank of the River Thurne between Womack Water and Hickling. There are over 10km of flood defences, 7km are earth banks and the remainder narrow concrete flood walls. The works subject to this consultation cover 5.5 km of defences between Womack Water and High's Drainage Mill. In conjunction with the Norfolk Wildlife Trust we are considering the remaining length through to Hickling as a possible wetland creation scheme. This will take some time to resolve and does not affect the works described here.

There are over 100 riverside bungalows and many commercial properties close to the flood defences. Around Potter Heigham Bridge there are shops, entertainment and boat hire firms.

Recreation is an important feature of this compartment. Boating and fishing are very popular. Many riverside bungalows are used as holiday lets and are used throughout the year either by customers or the owners. There are moorings along much of the length, most is private but there are also formal and informal public moorings. There is a public right of way along the top of the floodbank/flood wall for most of the length of the compartment and further access routes across the marshes.

The defences provide protection to large areas of valuable grazing marsh including the Ludham and Potter Heigham Site of Special Scientific Interest (SSSI) and part of the Upper Thurne Broads and Marshes SSSI.

## Need to improve existing flood defences

The standard of the flood defences in Broadland has reduced over time due to bank settlement and the combined effects of erosion and deterioration of piling. Without the improvement works the defences will become more vulnerable to overtopping and breach. A large number of maintenance schemes have been carried out in Compartment 6 since 2001 to fix leaks through or under the concrete floodwall. Substantial repairs were carried out in 2007 when a tidal event caused significant damage to a section of the concrete defences. A comprehensive programme of works is now required in order to provide an appropriate standard of defence throughout the compartment.



Site of 2007 emergency works

The division of the compartment into separate phases means that progress on the main construction and improvement of flood defence works will not be delayed by the on going discussions around the possible wetland creation scheme.

## What options did BESL consider for improvement works in this compartment?

The range of flood alleviation solutions that BESL considered for these works follows the Environment Agency's and BESL's overall strategy for flood alleviation in Broadland. Specific solutions are based on up-to-date survey data (assessing the condition of the existing floodbank and erosion protection), an evaluation of the level of flood defence provided and local issues including environmental considerations.

The options BESL have considered are illustrated and explained in the enclosed flyer. A brief outline of some of the decision criteria leading to a particular option as the preferred solution is also given. BESL has taken every effort to ensure that the solutions presented here are technically feasible, cost-effective and environmentally sound. It is the combination of these principles for a 'sustainable' project that underpin BESL's specific proposals detailed here and across Broadland.

## What are BESL's specific proposals for Compartment 6?

A summary of these works is as follows:

Proposed works	Length (m)
Strengthen floodbank (based on Option 1)	5180
Rollback floodbank	317
Install steel sheet piles	124
Remove piles from rivers edge	80
Install erosion protection on rivers edge	170

A plan of the proposed works is included with this leaflet. The primary aim is to provide defences that will resist breach during a high level flood event. The levels will be raised in places, but not to an extent that will change flooding patterns at nearby locations. The concrete wall behind the bungalows will remain as part of the defence but with the earth bank behind extended to give added strength as well as provide an alternative route for pedestrians, at times of very high water when the existing footpath is flooded.

Discussions are underway with the owners of the boatyards at Potter Heigham about the most appropriate form of defence for that area. The current proposal favours new flood protection around the outside of the Herbert Woods boatyard using a combination of strengthening flood banks, crest piles and low flood walls. This option minimises disruption to the boatyard operations whilst still providing protection to the road, Lathams shop and the other businesses to the east. The alternative option would be to retain a front line involving re-piling, wall raising and the incorporation of a flood gate across the river entrance to the Herbert Woods boatyard. It is likely that this more expensive option would require external funding.

<p><b>Will the proposals have any impacts on flora and fauna?</b></p>	<p>Direct and indirect (e.g. water level changes) impacts on designated sites will be assessed in consultation with Natural England. Ludham and Potter Heigham Marshes SSSI will benefit from the works although there will be an associated small loss of grazing marsh. Replacement grazing marsh will be provided.</p> <p>Surveys for water voles, otters, bats, reptiles, scarce plants, Norfolk Hawker dragonflies and dyke vegetation have been undertaken to identify measures that need to be taken to avoid or minimise impacts during construction. In terms of habitat change there will be some loss of grazing marsh but increases in rond and soke dyke following construction. The defences protect a large number of valuable freshwater dykes including some which are the only location in East Anglia for Floating Water Plantain (<i>Luronium natans</i>), a highly protected species.</p> <p>Full details will be provided in the Environmental Statement that will be submitted with the planning application.</p>
<p><b>What changes to the local landscape will the work cause?</b></p>	<p>There will be changes to the view across the landscape during the proposed works but the majority of these are temporary, such as the view of bare ground until vegetation re-establishes on the floodbank, folding and within the soke dykes. The flood alleviation works will provide long-term protection of the Broads landscape and its valuable habitats from the damaging effects of flooding.</p>
<p><b>Will the proposed work affect navigation?</b></p>	<p>The majority of the construction works will be carried out from land. Where work is carried out from the river, such as re-piling and other erosion protection, this will be completed in the winter months. We will consult with the Broads Authority and mooring owners early on in the design process to ensure the minimum of disruption to navigation and mooring access. Access to the boatyards at Potter Heigham will be maintained at all times throughout the works.</p>
<p><b>What impacts will there be on other informal recreation?</b></p>	<p>A public right of way exists along the crest of the floodbank/floodwall. To ensure the safety of the public part of this route will have to be closed during the works. However access to the bungalows will be maintained throughout the works as no alternative access is available. It will not be possible to conduct all the works out of high season but every effort will be made to minimise any disruption caused.</p> <p>The Three Rivers Way Association (<a href="http://www.threeriversway.org.uk">www.threeriversway.org.uk</a>) is interested in providing a surfaced route along the floodbank between Ludham and Potter Heigham. If the additional funding and consents can be obtained then this project will be incorporated into the flood defence improvement works.</p>
<p><b>What are the implications for landowners and business?</b></p>	<p>During the works there will be some loss of land for grazing and access. BESL contacted landowners to ensure a programme can be designed to minimise disruption to businesses and maintain access during the construction work.</p>
<p><b>What other flood defence works are planned for this area? What is the proposed timing of these works?</b></p>	<p>Defence works have already been undertaken on the right bank of the river Thurne downstream of Womack Water to the River Bure. On the opposite bank works are substantially complete between Thurne and West Somerton (Compartment 7). The team working on Compartment 7 will transfer over to Compartment 6 in 2010. Works are also ongoing at Thurne Dyke to Boundary Farm Staithe (Compartment 8).</p>



Herbert Woods boatyard

## What are the potential issues associated with this work?

The Strategic Environmental Framework (SEF) process, developed by BESL with extensive stakeholder input, sets out environmental standards for maintenance, flood defence improvements and first-time defences for undefended communities. The scheme details are consistent with these environmental standards. The table on the previous page identifies some of the key issues associated with these proposals. We would welcome your comments on these and any other issues that you think should be included.

## What is the proposed timing of the works?

A planning application will be submitted before the end of 2009 with a view to the main construction earthworks beginning in 2010. Vegetation clearance will be required in winter 2009/2010.

## What are the next steps?

Thank you for taking the time to read through this information leaflet and answering the associated questions in the accompanying questionnaire. BESL is keen to find out what you think of these proposals. We will collate your replies and consider all comments made; these will help to inform us as we develop the proposals in more detail. If you have any queries regarding either these proposals, or those elsewhere in Broadland, please phone Angela Rowe (BESL Project Administrator) on:

**01603 226161**

## Contact us

If you wish to reply we would encourage you to email your reply to Angela Rowe at:

**Halcrow@BAMnutall.co.uk**

Please mark the subject line of your email with:

**Compartment 6 Consultation**



Ludham and Potter Heigham Marshes SSSI

Alternatively, our freepost address is:

**Broadland Environmental Services Limited  
Freepost ANG20504  
Norwich NR1 1ZW**

Both the consultation document and accompanying questionnaire can be downloaded from the project website at:

**[www.bfap.org](http://www.bfap.org)**

BESL would like to reduce the amount of paper we consume. In future can we email you the consultation document? If you are happy for us to do this please confirm, via email, the best address for us to send the document to.

Please try to ensure that all replies are received by:

**11<sup>th</sup> November 2009**

Replies can be considered after this date but please contact us first if you need an extension.

## List of consultees

In addition to landowners/residents we will contact:

- British Dragonfly Society
- Broads Angling Strategy Group
- Broads Authority
- Broads IDB (Water Management Alliance)
- Broads Hire Boat Federation
- Broads Society
- CPRE
- Environment Agency
- Genesis Fundraisers
- Hickling Broad Regatta Committee
- Hickling Broad Sailing Club
- Hickling Broad Windsurfing Club
- Hickling Parish Council
- Ludham Parish Council
- National Association of Boat Owners
- Natural England
- Norfolk and Suffolk Boating Association
- Norfolk Area Ramblers
- Norfolk County Council
- Norfolk Landscape Archaeology
- Norfolk Wildlife Trust
- Norfolk Windmills Trust
- North Norfolk District Council
- Northern Rivers Sailing Club
- Open Spaces Society
- Potter Heigham Parish Council
- Reed and Sedge Cutters Association
- River Thurne Tenants Association
- RSPB
- The Three Rivers Way Association
- Thurne Bungalows Management Committee
- Thurne Parish Council