

# BROADLAND FLOOD ALLEVIATION PROJECT



## PROTECTING BROADLAND

### Flood alleviation improvements for Fritton and Belton Marshes (Compartments 33 and 34) Public Consultation August 2009

#### Introduction

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.



Caldecott Mill on Belton Marshes in Compartment 34

#### 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.

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).



Slow worm



Moorings at Burgh Castle Marina



## Site description

Compartments 33 and 34 are on the right bank of the River Waveney downstream of St Olaves Bridge and upstream of Burgh Castle Marina. The 7.3 kilometres of floodbank provide protection to Fritton and Belton Marshes. The existing flood defences comprise earth floodbanks and concrete walls with erosion protection provided by reed rond and a combination of steel and timber piling. These marshes are mainly used for grazing and arable farming. Footpath access is limited to short sections of bank near Burgh Castle Marina and St Olaves. Formal and informal moorings exist throughout both compartments with boat hire and boatyard businesses operating nearby. Commercial reed cutting is undertaken on the large ronds.

There are residential properties and boat yards on the river frontage both at St Olaves and Burgh Castle Marina. Within the marshes there are a number of drainage mills close to the defences.

Compartments 33 and 34 support regionally significant reptile populations; Adders, lizards, grass snakes and slow worms all reside in large numbers along the floodbank and in Fritton Forest. The banks are also home to the narrow-mouthed whorl snail (*Vertigo angustior*), which is an endangered species known from less than ten sites across the UK.

## Need to improve existing flood defences

The standard of the flood defences in Broadland has progressively reduced over time due to bank settlement and the combined effects of erosion and deterioration of piling. Without the investment in improvement works the defences will become more vulnerable to overtopping and breach. In the case of Fritton and Belton Marshes the works are also required to reduce the seepage of water through the banks, which is having a negative impact on the sensitive freshwater features within the marshes. A number of maintenance schemes have been carried out here since 2001, including leak repairs and some crest raising, but a more comprehensive programme of works is now required in order to provide an appropriate standard of defence.

## 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 that have been 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 33 and 34?

Proposed works	Length (m)
<b>Compartment 33</b>	
Crest pile	2450
Strengthen existing bank/floodwall	665
Strengthen floodbank and sheet pile	90
Strengthen floodbank and install erosion protection	35
Rollback floodbank and sheet pile	50
<b>Compartment 34</b>	
Crest pile	2045
Construct new crosswall	160
Strengthen existing floodbank	725
Setback floodbank from eroding rond	75
Setback floodbank and retain piles	375

A summary of these works is as follows:

A plan of the proposed works is included with this leaflet. The aim of these works is to strengthen and in places raise the level of the existing defences so that they will not breach during a high level flood event. Where the rond width is adequate banks will be strengthened along the existing alignment. Where the existing erosion protection is failing (e.g. piling is in poor condition or the erosion protection has deteriorated or is very narrow), setback is usually the preferred option. A new section of floodbank will be constructed near the south end of Compartment 34 to tie the flood defence back into high ground, thus retaining the wet marshland habitat between the two compartments.

The Fritton and Belton marshes have previously provided a release valve for high water which would otherwise flood into the nearby St Olaves community; consequently certain low sections of existing bank will be strengthened but kept relatively low in order to allow this to continue. These lower banks will be fortified to protect them from erosion and to guard against potential breach.

Due to the regionally significant reptile population inhabiting these banks it is important that BESL minimise any impact of the works upon this valuable habitat. Crest piling is therefore proposed along most of the bank in order to provide the necessary standard of defence without having to undertake major earthworks which would require the translocation of reptiles. Crest piling involves driving recycled plastic piles close to the front of the bank. This technique has already been successfully used in the Waveney Valley downstream of Beccles.

In locations where water is predicted to overtop during high level events strengthening will be undertaken instead of crest piling. This will create a spillway that will resist erosion and breach.

<p><b>Will the proposals have any impacts on flora and fauna?</b></p>	<p>Surveys for water voles, otters, bats, reptiles, molluscs, scarce plants and dyke vegetation have been undertaken to identify measures that need to be taken to avoid or minimise impacts during construction. The main potential impact is on populations of reptiles including adders. A combination of scheme design alteration, local habitat enhancement and animal relocation, and programme timing adjustments will be used to minimise impacts. Impacts will largely be avoided by the use of crest piling. Where earthworks are required it will be necessary to move animals to suitable habitat elsewhere.</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>A number of changes to the view across the landscape are anticipated as a result of the proposed works. However 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. Completion of 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>To what extent will the proposed work affect navigation?</b></p>	<p>The majority of the construction works will be carried out from land. Water-based work, such as the installation of erosion protection, will be done in the winter months. Consultation with the Broads Authority regarding the moorings will be conducted early on in the design process to ensure the minimum of disruption to navigation and mooring access. A positive benefit will be the opportunity for the Broads Authority to use the areas created by setback for dredging disposal.</p>
<p><b>What impacts will there be on other informal recreation?</b></p>	<p>There are public footpaths at both ends of the works area providing access to moorings at St Olaves and Burgh Castle Marina, the latter forming part of the Angles Way national route. There will be temporary access restrictions to these areas whilst the works are carried out for Health and Safety reasons. The works will result in an improved bank surface for public access.</p>
<p><b>What are the implications for landowners and business as a result of the proposed improvement works?</b></p>	<p>During the works there will be some loss of land for grazing, arable and access. BESL contacts landowners early in the design process to ensure their views are taken into account. There will be no impact on properties or businesses in the adjacent areas of St Olaves or Burgh Castle Marina.</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 completed upstream of St Olaves, and on Haddiscoe Island on the left bank of the Waveney. Improvement works to some sections of bank on the south side of Breydon Water are scheduled to begin before 2012.</p>



*Pleasure craft on the River Waveney*

## Alternatives BESL considered and discounted

The “do minimum” alternative would involve ‘maintenance only’ to both the floodbank and existing erosion protection. However, the remaining floodbanks within this area do not provide an adequate level of protection. In many places these defences are too low with very poor erosion protection. If the proposed works are not undertaken, there would be increased risk of overtopping and a far greater likelihood of breach. BESL and the Environment Agency do not consider the consequence of this alternative to be acceptable.

## 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 in 2009 with a view to the main construction earthworks beginning spring 2010 subject to programming. Preparation of nearby habitat to be used for reptiles will be undertaken prior to the main works commencing. Vegetation clearance will be required in the winter proceeding the works.

## 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**



*Existing concrete defences*

## 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 33 and 34 Consultation**

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:

**21<sup>st</sup> September 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:

- Belton with Browston Parish Council
- British Dragonfly Society
- Broads Angling Strategy Group
- Broads Authority
- Broads Hire Boat Federation
- Broads Society
- Burgh Castle Parish Council
- CPRE
- Environment Agency
- Fritton St Olaves Parish Council
- Great Yarmouth Borough Council
- Great Yarmouth Harbour Authority
- Haddiscoe Parish Council
- National Association of Boat Owners
- Natural England
- Norfolk and Suffolk Boating Association
- Norfolk County Council
- Norfolk Wildlife Trust
- Norfolk Windmills Trust
- Open Spaces Society
- Reed and Sedge Cutters Association
- RSPB
- Waveney, Lower Yare and Lothingland IDB
- Waveney Ramblers