

**Broadland Environmental Services Ltd**  
Strategic Environmental Assessment

Environmental policy notes

**May 2003**

**Halcrow Group Limited**

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**Broadland Environmental Services Limited**  
**Report Number WN/SEA/EP/001**

Strategic Environmental Assessment  
Environmental Policy Notes

**Contents Amendment Record**

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# 1 Introduction

1.1 As part of Strategy development, Broadland Environmental Services Limited (BESL) has updated the Environment Agency's 1997 Strategic Environmental Assessment. The new environmental objectives develop the cross-cutting issues that have emerged in the project area and recognise how the project interacts with a wide range of interests. The objectives have been developed from the Environment Agency's former 'environmental acceptability and enhancement criteria' and results of recent public participation. The objectives also reflect current policy and practice and issues raised by stakeholders, and the contractual framework within which BESL operates.

1.2 The new environmental objectives have taken into account:

- condition surveys
- topographic surveys
- environmental monitoring
- impact of improvement works as they are carried out
- changes in legislation and policy
- hydraulic modelling of the river system as improvements progress
- EIA and consultations

1.3 The SEA update was developed with the benefit of wide public consultation on key issues between May and July 2002. In the light of the issues raised during this 'scoping' stage, BESL developed its environmental objectives and standards to provide an updated context for the planning, design and implementation of its maintenance and improvement works. This updated work was presented to a Stakeholder Forum in February 2003. Following the Forum, further feedback was received in March 2003. Where possible, relevant stakeholder comments and suggestions were incorporated into environmental objectives and policies.

1.4 The entire process to develop and update the SEA is a dynamic one – and BESL will review its content and implementation on an annual basis. Stakeholders who have expressed an active interest in being involved in the ongoing SEA process (those attending the Forum) will be contacted for their input as required.

## 2 Environmental policy notes

- 2.1 The new environmental objectives are accompanied by supporting text to assist with their interpretation and to provide a. This series of Environmental Policy Notes has been prepared to help interpret the environmental objectives and guide their implementation. They elaborate BESL's approach to key aspects of the SEA where necessary.
- 2.2 The environmental policies provide a consistent approach to individual policy topics and provide stakeholders with an understanding of BESL's approach. Policy notes will be kept under review and updated periodically. Further ones will be prepared if required, and current ones will be kept under review as the project progresses.

# Broadland Flood Alleviation Project

## Strategic Environmental Assessment



Policy Note

### 1 Access and Public Rights of Way

#### 1.0 Purpose

BESL has prepared Policy notes to set out BESL's approach to the planning, design and implementation of improvement and maintenance works.

The topics covered reflect responses received from stakeholders during the development of the Broadland Strategic Environmental Assessment. Policy notes supplement the information that supports the project's environmental objectives.

Policy notes will be kept under review and updated periodically.

#### 2.0 Background

Public rights of way and other permitted access routes provide an important function in the public enjoyment of the Broads.

Most of the rights of way in Broadland run along the crest of the floodbanks, giving views of the river, the distinctive Broads landscapes rising to high ground.

Statutory Rights of Way Improvement Plans are being prepared by Norfolk and Suffolk County Councils. Part of this work will identify priorities for improvements and this will enable organisations to seek focussed partnerships with BESL.

BESL will require access to the floodbanks. This will generally be along existing farm tracks but there may be a need to improve these and create temporary haul routes.

#### 3.0 Approach

BESL recognises the importance of public rights of way for informal recreation by both residents and visitors.

BESL will maintain the existing rights of way network through reinstatement of routes following the completion of works. BESL will follow a sequential approach towards furniture and other obstructions on public rights of way. They are (in order of preference):

- 1 barrier-free routes
- 2 clear gaps in fencing
- 3 kissing or squeeze gates
- 4 stiles

Wherever possible BESL will seek to remove these barriers with permission from landowners.

The installation of squeeze gates or kissing gates will be used in preference to stiles wherever replacements are needed and where any existing structures cannot be re-used.

Fencing will be reinstated at property boundaries and field divisions where these



are authorised and landowners request it. BESL will not increase barriers to access on public rights of way. If landowners request new boundary fencing, gates or stiles, the relevant consents will be required for them under the Highways Act 1980.

Where works access is required across grazing marsh, existing tracks (some of which are also classified as public rights of way) will be used. However, if suitable tracks do not exist new ones will be created. Once works are completed and there is no future need for the access tracks the area will be reinstated to their previous standard and condition. The tracks will only remain if landowners require them for their own purposes.

The surfacing of reinstated rights of way will use the same materials as the original surface unless there are more suitable alternatives acceptable to all parties.

Temporary and permanent diversions. Where works can only be safely undertaken by preventing public access, a temporary closure will be applied for and an alternative route provided. The temporary route will be agreed in consultation with landowners, Broads Authority rangers and the County Council. The route will follow as close as practicable the existing right of way.

Temporary footpath diversions will not normally be necessary for maintenance works where safe access is usually retained. However, Broads Authority rangers will always be kept informed of BESL's work to identify any local issues that need to be addressed.

Where public rights of way pass over floodbanks that are to be setback, the existing route will be closed and a new route opened along the new section of floodbank. The new floodbank will be parallel to the old one, usually no more than about 50 metres away. BESL will always consult with Broads Authority rangers and the relevant County Council about all proposals to formally divert public rights of way.

#### Equality of access

BESL will have full regard to the obligations placed on it by the Disability Discrimination Act 1995. In conjunction with the Environment Agency, BESL will establish aspects of its operations that are provided for the general public and ensure that these aspects provide an equality of access for all users including people with disabilities.

#### Liaison on access

The specialist advice of the Broads Access Advisory Group (BAAG) will continue to be sought on accessibility issues. This will be both on updates to the SEA and on detailed schemes as they come forward.

BESL's primary liaison on strategic and policy matters of access generally will be through the newly formed Local Access Forum. The Forum comprises a representative cross-section of organisations with access interests and it will be the primary means by which BESL will liaise on broad access issues.

It is important to maintain access through flood defences in public areas; in undefended communities; riverside businesses such as boatyards and shops; and to visitor attractions and other facilities. These all comprise vital aspects of the local economy and ensure access to and from the range of local services is maintained.

Where BESL's proposals provide new floodwalls, floodbanks or other structures, it is essential to ensure that access between facilities, businesses and public areas is retained. BESL will take account of advice from Local Authority Access Officers, and relevant best practice guidelines.

#### **4.0 Conclusion**

The main effects of the project on public rights of way will be temporary in nature during construction and suitable temporary alternative routes will be provided. Restoration of routes will be to at least the existing standard.

Opportunities may exist for a partnership approach between the project and other organisations to identify and deliver improvements and enhancements.

Early liaison will be undertaken with relevant organisations to allow full and appropriate consideration of rights of way issues.

# Broadland Flood Alleviation Project

## Strategic Environmental Assessment



Policy Note

## 2

### Landscape and townscape

#### 1.0 Purpose

BESL has prepared Policy notes to set out BESL's approach to the planning, design and implementation of improvement and maintenance works.

The topics covered reflect responses received from stakeholders during the development of the Broadland Strategic Environmental Assessment. Policy notes supplement the information that supports the project's environmental objectives.

Policy notes will be kept under review and updated periodically.

#### 2.0 Background

The Broadland landscape is a product of geology, topography and hydrology, coupled to man's influence. Evidence of the latter, from medieval digging of peat through to more recent land use management is present throughout.

The landscape character of the Broads is unique and highly valued and is reflected in the statutory status of the Broads, which is equivalent to that of a National Park. River channels, open water, reedbeds, fen, carr woodland and drained grazing marsh form the features of the Broadland landscape as well as buildings that are distinctive features in the landscape as well as windmills and drainage mills.

Riverside villages and other settlements punctuate the landscape and contribute to the built environment of the Broads.

#### 3.0 Approach

BESL is very aware of the importance and sensitivity of the Broadland landscape. To ensure that the project gives adequate consideration to landscape issues - both river-based and land-based - a formal landscape and visual assessment will be undertaken for all planning applications for which an Environmental Statement is submitted. The scope and methodology of such assessments will be based on best available good practice including guidelines from the Landscape Institute/Institute of Environmental Assessment and the Countryside Agency's 'Landscape Character Assessment'. Should the Broads Authority wish to offer hybrid assessment guidelines for the National Park area, BESL will also take these into account when carrying out its planning work.

The Broads Authority is currently preparing guidance on landscape character in the Broads. It is expected that this study will also help identify the sensitivity of landscape features to change. When the Authority's guidance is published, BESL will utilise the guidance to help inform future landscape and visual impact assessments.

The project will deliver substantial benefits to the sensitive and valued Broads landscapes by improving its protection from the damaging effects of permanent flooding. The scale and nature of BESL's work means that the majority of other effects on the Broadland landscape will be temporary during construction.

For minor works (including, maintenance) and others that do not require a formal impact assessment, BESL will still ensure that the planning, design and implementation of works is appropriate to its setting and are designed to encourage effective integration into the surrounding landscape.

Construction materials and methods will be selected to ensure the works successfully integrate back into the landscape. BESL will seek to maximise the use of 'soft' solutions (reed rolls, alder poles etc.) for erosion protection purposes. Re-vegetation will typically be by re-seeding small areas of works, or by allowing natural regeneration for larger-scale working areas.

In the sensitive Broads National Park landscape, changes to small-scale features such as fences, gates and tracks may alter their relationship to the surrounding landscape. Where EIA is required, evaluation of effects features will be carried out

BESL will monitor the effectiveness of its work, including environmental and landscape change. This will enable BESL to evaluate the success of works integrating back into the landscape and reviewing future techniques and specifications if required.

In riverside villages and other undefended areas, BESL will design and build defences in ways that do not detract from the quality and appearance of the built environment. This will be achieved by the careful use of materials that are appropriate to their surroundings.

#### **4.0 Conclusion**

BESL's work will have a substantial benefit by improving the protection of valued Broads landscapes against the damaging effects of flooding. Other landscape impacts from the Project will be temporary and confined to the construction period and a short period afterwards to allow for regeneration and integration into the landscape.

Further assessment of the project's effects on character and sensitivity will be developed with the Broads Authority when it publishes new landscape guidance.

# Broadland Flood Alleviation Project

## Strategic Environmental Assessment



Policy Note

### 3

#### Designated sites

##### 1.0 Purpose

BESL has prepared Policy notes to set out BESL's approach to the planning, design and implementation of improvement and maintenance works.

The topics covered reflect responses received from stakeholders during the development of the Broadland Strategic Environmental Assessment. Policy notes supplement the information that supports the project's environmental objectives.

Policy notes will be kept under review and updated periodically.

##### 2.0 Background

Broadland is one of the most important wetland complexes in Europe. This is reflected in the fact that over 6,000ha are formally designated for nature conservation. The international designations are Special Area of Conservation (SAC) under the Habitats Directive; Special Protection Area (SPA) under the Birds Directive; and Ramsar sites under the Ramsar Convention.

It is a legislative requirement (Habitats Regulations) and Government policy that where development is likely to affect SPA, SAC and Ramsar sites they should be subject to special scrutiny – an 'Appropriate Assessment'. The Appropriate Assessment is in addition to the requirement to undertake an Environmental Impact Assessment.

The Appropriate Assessment has to be undertaken by the relevant competent authorities – public bodies that give consents, licences etc. in respect of the development. The main competent authorities likely to be involved are the Broads Authority, Environment Agency and DEFRA. They will be advised by English Nature. Details of the appropriate assessment process are contained in PPG9 Nature Conservation.

An 'Appropriate Assessment Panel' (AAP) has been formed specifically to consider information from BESL about its work in European sites. The panel has a valuable role in discussing the possible effects of proposed schemes in European sites, gaining clarification and understanding of complex designated site issues. The Panel comprises the Broads Authority and Environment Agency (competent authorities), English Nature (statutory advisor) and the RSPB (specialist advisor with major interest in designated sites). English Nature has a specific legal role under the Habitats Regulations regarding the provision of advice with regard to designated sites.

Where the flood defence works are deemed by English Nature to be necessary to the management of the site then there is no requirement for the formal appropriate assessment to be undertaken. For this situation to apply issues such as scale of impact, nature of the site and effect on favourable condition status have to be considered. Each case will be considered separately.

##### 3.0 Approach

BESL will work closely with the Appropriate Assessment Panel to ensure that the effects of flood defence works, both individually and cumulatively, are properly considered.

A strategic assessment of effects on European sites has been undertaken that:

- Quantifies the amount and type of habitat change as a result of proposed works within designated sites;
- Evaluates indirect impacts on designated sites through changes in water levels;
- Outlines requirements for providing new habitat to compensate or offset the loss of habitat within designated sites.

BESL will seek to minimise the loss of habitats that support SPA bird populations or are a SAC interest feature. Where possible, limited setback will be employed within designated sites to minimise the loss of habitat. For floodbank strengthening, where possible, the strengthening will take place on the front face (rond) to minimise the amount of habitat that will be lost beyond the soke dyke.

Where works *are not* deemed necessary for the management of the site and an appropriate assessment concludes that compensatory habitat is required then BESL will provide this. The size, location and management methods for the compensatory land will be agreed with English Nature.

Where works *are* deemed necessary for management of the site, or where the appropriate assessment concludes no adverse affect on site integrity, BESL will create additional habitat elsewhere as a voluntary measure. This will be done to ensure no net loss of key habitat types within designated sites. The principles BESL will adopt for new habitat will be developed and agreed with the Environment Agency and the Broads Authority as competent authorities, with advice from English Nature and the participation of the RSPB.

#### **4.0 Conclusion**

The AAP will provide the focus for considering impacts of flood defence works on internationally designated sites and their features. BESL will take a strategic approach to the assessment of impacts and provision of compensatory habitat and habitat creation areas.

# Broadland Flood Alleviation Project

## Strategic Environmental Assessment



Policy Note

### 4

## Biodiversity

### 1.0 Purpose

BESL has prepared Policy notes to set out BESL's approach to the planning, design and implementation of improvement and maintenance works.

The topics covered reflect responses received from stakeholders during the development of the Broadland Strategic Environmental Assessment. Policy notes supplement the information that supports the project's environmental objectives.

Policy notes will be kept under review and updated periodically.

### 2.0 Background

Broadland is one of Europe's finest wetlands and is recognised as such through the designation of 6,000ha of land. The whole of The Broads area has the equivalent status of a National Park.

The habitats that are found in Broadland today are a product of man's activities and changing sea levels. Principal activities have included the digging of peat to create the Broads, the embankment of large areas of floodplain (thereby creating the 'drained marshes') and the cutting of reed and sedge.

There are valued habitats and species throughout the Broads, not just within designated sites.

The deterioration of the floodbanks combined with rising sea levels and more regular stormy weather threatens freshwater grazing marsh, broads and fen habitat. These works will provide enhanced protection against breach, and therefore major flooding, whilst maintaining the pattern of overtopping that existed in 1995. However, the construction activities necessarily involve damage and disturbance to habitats and species. It is anticipated that most of these impacts will be short-term, confined to the construction period, and that appropriate mitigation measures will ensure that vegetation and species can re-establish.

[see Policy Note 3 Designated sites]

### 3.0 Approach

BESL will assess the impact of all maintenance and improvement works on biodiversity. All improvement works require Environmental Impact Assessment and the Environmental Statement will fully evaluate impacts on ecology.

Maintenance All maintenance schemes are assessed for their potential environmental impacts and for ecology, this includes checking whether the works fall within a designated site; desk and field survey for water voles and otters; desk and field survey for rare plants; desk and field survey for breeding birds. The annual maintenance programme is sent out for consultation to a wide range of organisations including English Nature, the Broads Authority and Norfolk Wildlife Trust.

Designated sites In all cases where work is within an SSSI, assent has to be given by English Nature before the works can proceed. The impact of improvement works on SSSI features (excluding international ones) will be assessed in the Environmental Statement. The policy for dealing with recognised features within international sites (SPA, SAC and Ramsar) is covered in Policy

Note 3.

Data BESL has developed a GIS database that contains information on designated sites, protected species, biodiversity priority species, RDB and Nationally Scarce species.

BESL will work with statutory and non-statutory nature conservation organisations and individual recorders to ensure that the best available information is available to help assess the impact of works. This will be achieved through:

- consultation on individual improvement schemes and, where appropriate, maintenance works;
- exchange of data (BESL's survey and monitoring programme will generate a large amount of data).

Protected species BESL will comply with legislative requirements and best practice to ensure that impacts on protected species are minimised, and that any adverse effects are mitigated as necessary.

Norfolk BAP. BESL will consider the impacts on biodiversity species and habitats including reference to published target and actions. BESL will liaise closely with the BAP Wetland Group to identify enhancements that may be delivered either as an integral part of the works or in partnership with others.

#### **4.0 Conclusion**

Improved flood defences in Broadland will provide enhanced protection to many important habitats and species. The major improvement works will involve disruption to sites and result in changes in the area of different habitats. BESL will seek to minimise damage and disruption to the natural environment and where appropriate seek to provide enhancements as part of scheme design and implementation.

However, it is emphasised that BESL's primary interest is the improvements and maintenance of flood defences, which will provide significant enhancement to the area. In planning and implementing the works, BESL will have due regard to the potential for enhancement through partnership opportunities. However, any such opportunities must be consistent with the timetable for implementing the works.



# Broadland Flood Alleviation Project

## Strategic Environmental Assessment



Policy Note

### 5

#### Undefended communities

##### 1.0 Purpose

BESL has prepared Policy notes to set out BESL's approach to the planning, design and implementation of improvement and maintenance works.

The topics covered reflect responses received from stakeholders during the development of the Broadland Strategic Environmental Assessment. Policy notes supplement the information that supports the project's environmental objectives.

Policy notes will be kept under review and updated periodically.

##### 2.0 Background

BESL is required in its contract to improve and maintain existing flood defences in the Project area but also to provide first time protection for undefended properties.

These properties are defined by the Environment Agency's contract with BESL as:

- Existing in July 1998
- Being a fixed building equipped with water and sanitation and/or electricity
- At risk from flooding due to its floor level being at or below a given level (see below) or due to increased water levels caused by BESL's flood defence improvements elsewhere in the system.

BESL is not contracted to provide protection for gardens, moorings or staithees even if these are associated with going commercial concerns. BESL is also not responsible for the maintenance or replacement of frontage piling that has been installed by landowners to act as protection from erosion. Such work is the responsibility of the landowner and BESL's duties relate purely to providing and maintaining flood defences.

Most undefended properties form part of a community, such as Reedham or St Olaves. Many of these undefended communities are truly undefended although some have limited defences.

##### 3.0 Approach

Twelve undefended communities have been identified as potentially requiring flood defences during BESL's Strategy development. However, all towns and villages within the Project area that are at risk from flooding will be assessed. Properties will be considered for flood defence if their ground floor levels are below a certain level that varies according to the location of the village in the river system. If a property does not fall within the clearly defined scope there will be no provision of flood defences as part of the Broadland Flood Alleviation Project.

The exact height above average sea level of the protection provided for riverside communities will vary throughout Broadland. It will, however, defend against floods of a size that have a 14% chance of occurring in any year (approximately

once every 7 years); allow for the effects of sea level rise during the lifetime of the Project and provide a safety margin (or 'freeboard') of 150mm for waves. The hydraulic model will be used to help calculate this allowance for sea level rise. In undefended areas BESL's work will reduce the level of flooding but cannot prevent all future flooding; in the highest flood events flooding will still occur.

Gardens and boat storage areas will not necessarily be provided with flood protection. BESL are only required to provide flood protection to 'properties' including boat sheds that fulfil the specific criteria.

Flood defence options that BESL are considering for undefended properties include the construction of floodbanks / walls comprising clay or concrete with the provision of floodboards and gates as required. Another option is water proofing individual buildings and the provision of floodboards in doorways and windows. Raising the building above the required flood level is another alternative. The use of washlands in alleviating flooding in undefended communities is also being investigated and while BESL is not currently proposing any, their possible use is not ruled out.

BESL will consult with property owners and others (e.g. Parish Councils) at an early stage when formulating proposals for undefended communities. Wherever possible, BESL will also use building materials that are appropriate to the character and appearance of local surroundings. Local preferences and the advice of statutory organisations on design of flood defences will also be taken into account at the planning and design stages.

Undefended properties will be provided with flood defences before works to nearby compartments are completed. BESL is required not to increase the risk of flooding in other areas as a result of works elsewhere in Broadland. This is particularly important in undefended communities. The programming of improvement works is based on BESL's understanding of the areas most at risk of flooding due to the poor condition of existing flood defences.

There are many isolated properties that may not have individual protection but are protected because they lie within a flood compartment.

#### **4.0 Conclusion**

BESL will be providing flood defence protection to undefended properties. These communities will receive considerable benefits from the reduced frequency of flooding.

# Broadland Flood Alleviation Project

## Strategic Environmental Assessment



Policy Note

### 6

### Setback

#### 1.0 Purpose

BESL has prepared Policy notes to set out BESL's approach to the planning, design and implementation of improvement and maintenance works.

The topics covered reflect responses received from stakeholders during the development of the Broadland Strategic Environmental Assessment. Policy notes supplement the information that supports the project's environmental objectives.

Policy notes will be kept under review and updated periodically.

#### 2.0 Background

Floodbank setback behind existing piling represents a long-term sustainable flood defence solution by moving flood defences landward. Setback behind existing piling involves constructing a new floodbank behind the existing floodbank to enlarge the floodplain and create a new reed rond that will act as natural erosion protection. Existing piling will then be removed.

The setting back of floodbanks away from the water's edge is a technique new to inland waterways. It has never previously been tried in Broadland.

Setback represents a sustainable solution to flood defence where piling is in need of replacement or where erosion rates are high. It will also provide significant landscape and nature conservation benefits through a change from a piled, canalised edge to a more natural appearance and behaviour of the river channel.

Setback will inevitably result in the change of some habitats and loss of agricultural land. There is likely to be an overall loss of grazing marsh but will significantly increase reed rond.

#### 3.0 Approach

BESL considers a number of factors to assess when and where setback behind piling will be an option. This assessment will involve a combination of current rond erosion rates; the physical characteristics and condition of existing floodbanks; and the location of the existing soke dyke. The outcome of consultations with landowners and other stakeholders is also significant. As with all of BESL's improvement works, solutions must demonstrate that they are technically feasible, cost effective, environmentally sound, and socially acceptable.

The first areas of setback will be constructed within compartment 11 (Halvergate). As this is a new technique this will include a trial area at Five Mile Reach where piling will be removed and erosion rates of the new rond at the river's edge will be monitored.

At Five Mile Reach, BESL expects to carry out piling removal after about three years of the commencement of development. During this time construction of the new floodbanks and rond will take place and rond vegetation will be established. Joint Broads Authority/BESL hydrographic surveys will take place to allow the

Authority to define the existing navigation envelope. Once piling is removed, post-implementation monitoring will take place as part of the on-going programme of monitoring for the duration of the project until 2021. This will include surveys of bank condition and ronds and the hydrographic survey. The Broads Authority wishes to ensure that the initial setback works at Five Mile Reach can be monitored and evaluated before permitting other piling removal in setback areas to proceed.

Initially, the timing of piling removal will be controlled by a planning condition. Once piling is removed the re-profiled edge will be will be protected against excessive erosion only if this becomes necessary for flood defence purposes – BESL is concerned to ensure that the integrity of its flood defences are not compromised. Channel markers will be provided by BESL where the works result in a temporary hazard to boats.

BESL is currently in dialogue with the Broads Authority to develop a management strategy that addresses erosion of the new river's edge, and remediation should excessive erosion of the new rond occur. With the benefit of hydrographic surveys, BESL will also agree what remediation measures are necessary should the consequences of rond erosion directly impact on the navigation envelope. BESL will accept responsibility for adverse environmental consequences of its work, where it exacerbates measured, natural background processes.

The objective of rond creation will be to establish similar vegetation communities to those that already exist on adjoining sections of rond.

The loss of agricultural land and net change in habitats as a result of setback will be reported in the SEA and individual scheme Environmental Statements. BESL recognises that there will be a need to compensate landowners where setback takes place. BESL have engaged the services of a land agent to assist in negotiation with landowners.

The hydraulic model will be used to assess the effects of setback on peak water levels and river velocity both locally and throughout the system.

#### **4.0 Conclusion**

Setback is a sustainable flood defence option that BESL will implement throughout Broadland in appropriate locations. Due to the length of this contract BESL will be able to monitor the long term effects of setback on the environment and undertake any remedial actions if required.

Although there will be a loss of grazing marsh due to setback these will be relatively small in the context of the Broads as a whole and offset by the benefits of reduced risk of breach and provision of a more natural channel edge.

# Broadland Flood Alleviation Project

## Strategic Environmental Assessment



Policy Note

### **7** Material sourcing

#### **1.0 Purpose**

BESL has prepared Policy notes to set out BESL's approach to the planning, design and implementation of improvement and maintenance works.

The topics covered reflect responses received from stakeholders during the development of the Broadland Strategic Environmental Assessment. Policy notes supplement the information that supports the project's environmental objectives.

Policy notes will be kept under review and updated periodically.

#### **2.0 Background**

BESL require large quantities of clay to provide material to strengthen the existing floodbanks and, in areas of setback, build new ones. Most flood compartments lie within areas of marine alluvium - calcareous clays that are suitable for using in floodbank construction. However, in the upper reaches of some of the valleys the local soils become peaty and the material cannot be used for construction of floodbanks.

#### **3.0 Approach**

BESL's will use a sequential approach to material sourcing. Material will be sought locally in the first instance from soke dykes and drainage ditches adjoining the working area. This will reduce costs as well as minimise the environmental impact of extracting and transporting material from elsewhere.

In situations where this is not possible BESL will have to source materials from other locations. This may involve the creation of borrow pits and transport of material to site by road or water. If borrow pits are necessary an application to the minerals authority will be made. This will be the subject of a separate Environmental Impact Assessment through which all significant impacts will be addressed. BESL will work closely with the Broads Authority, Norfolk County Council and others to ensure that the location of borrow pits and their design and after use are acceptable.

A strategic material sourcing assessment is being undertaken as part of the SEA and this will be developed as detailed site investigations are completed within compartments.

River dredgings have the potential to be used for some flood defence construction activities. However if very wet they are unlikely to be suitable for constructing floodbanks until they are dry. Its suitability also depends on the quality of the material, as well as the timing, location and quantity of availability in relation to the programme of works. Concerns about possible adverse environmental effects of dredging means that large scale dredging as a major source of material is unlikely to take place.

While river dredgings have little value in building floodbanks, they may be suitable in limited quantities as infill behind piling, or in for building new ronds. Care must

be taken to ensure that indiscriminate use of dredgings on new roads does not suppress the reestablishment of reed and floral diversity.

#### **4.0 Conclusion**

BESL's sequential approach identifies that material will be sourced locally from soke dykes and internal dykes adjoining the works area. If borrow pits are necessary then proposals will be brought forward in consultation with the relevant County Council and other statutory bodies.

# Broadland Flood Alleviation Project

## Strategic Environmental Assessment



Policy Note

### 8

## Navigation

### 1.0 Purpose

BESL has prepared Policy notes to set out BESL's approach to the planning, design and implementation of improvement and maintenance works.

The topics covered reflect responses received from stakeholders during the development of the Broadland Strategic Environmental Assessment. Policy notes supplement the information that supports the project's environmental objectives.

Policy notes will be kept under review and updated periodically.

### 2.0 Background

The navigation of the Broads is important historically for trade and today for pleasure. Commercial traffic in the river system is now extremely limited with the main recent use being by a tanker taking fuel oil to British Sugar at Cantley on the River Yare. Although this is not currently operating, it may do so again in the future.

The Broads has large numbers of pleasure boats, both motored and wind powered. Many of the boats are privately owned, however a significant number form the boat hire fleet. The hire boat industry has an important part to play in the local economy.

The flood defence works will alter the channel edge, particularly where existing piling is to be removed, and may cause temporary obstacles to navigation during construction. In places, improvement works will co-incide with existing moorings.

### 3.0 Approach

The continued navigation of the Broads is vital. BESL will seek to maintain navigation of the Broadland rivers for all present users.

Navigation may be temporarily prevented along narrow channels for periods during construction. However, this is most likely to occur during the winter periods when the rivers are used less frequently. The timing and locations of restrictions will be discussed in advance with the Navigation Authority and adequate notice would be provided before any closure was put into operation.

The navigable area of the river channels will be identified by the Broads Authority. This information will be used to enable BESL to identify any environmental effects attributable to the Project.

At present there are several locations where hazards to navigation exist. BESL will not create any new permanent hazards within the navigation channel.

Temporary hazards may be present in the short term such as piling before removal. In these circumstances temporary navigational markers will be installed until the hazard is removed.

When sheet piling is removed, erosion monitoring and the opportunity to address the consequences of excessive erosion will be provided as part of BESL's on-

going programme during its 20-year contract period. BESL does not consider that complete erosion protection from the outset is justified because only subsequent monitoring and technical assessments will determine if and where it is required.

BESL will, however, provide erosion protection from the outset at locations where grips and other channels connect with the main river. These places will be subject to scour due to the rise and fall of tides onto the river.

Where piling continues to serve its flood defence function effectively, public staithes and 24-hour moorings will be retained.

#### **4.0 Conclusion**

BESL is actively working with the Authority to develop a process to identify and address any adverse effects of its works on the public navigation. This approach, in combination with the commitment of BESL and the Agency to implement necessary remedial works, is an appropriate way of dealing with such issues should they occur. Discussion of these aspects between the Authority, BESL and the Agency is continuing.



# Broadland Flood Alleviation Project

## Strategic Environmental Assessment



Policy Note

### 9

## Environmental monitoring, data and reporting

### 1.0 Purpose

BESL has prepared Policy notes to set out BESL's approach to the planning, design and implementation of improvement and maintenance works.

The topics covered reflect responses received from stakeholders during the development of the Broadland Strategic Environmental Assessment. Policy notes supplement the information that supports the project's environmental objectives.

Policy notes will be kept under review and updated periodically.

### 2.0 Background

BESL will monitor and evaluate the environmental effects of its work. It will do this by desktop studies of existing information, and by undertaking surveys. A comprehensive programme of environmental monitoring, maintenance and improvement works will evaluate the environmental responses, positive and negative, to the flood defence works.

### 3.0 Approach

Environmental monitoring objectives, parameters for data collection and the method and reporting procedures will be developed in consultation with statutory bodies in the Broads.

BESL will undertake monitoring at local (within individual flood compartments) and site-specific (individual flood defence works within a flood compartment) levels.

BESL will carry out monitoring of certain specific, quantifiable environmental objectives. This will include monitoring the following changes:

- salinity upstream of improvement works;
- salinity of freshwater dykes and habitats;
- flood risk in undefended communities;
- flood risk in grazing marshes and marsh dykes;
- ecological function of mosaic of rond, floodbank, folding and soke dyke habitats;
- erosion of new ronds;
- siltation of the navigable channel (to be defined by Broads Authority);
- flood risk in undrained peatland;
- enhancement or creation of new habitat;
- area and quality of estuarine habitat;
- quality and coverage of public rights of way;
- landscape change (with Broads Authority).

Additional monitoring may be required during the project if required, where this is directly relevant to the project.

BESL's own environmental monitoring will be carried out by either in-house specialists or by sub-contracting elements to suitably qualified and experienced

persons or organisations.

BESL will adopt an open and transparent approach to the use and dissemination of information and monitoring results. There is already an active exchange of information between BESL and key organisations including English Nature, the Broads Authority, bird clubs, and voluntary recorders. This exchange will increase as BESL progress individual schemes and the environmental monitoring is fully operational. BESL is always keen to extend arrangements with other organisations for mutual data exchange.

Whenever practicable, and with the consent of the Environment Agency, BESL will provide access to environmental data which is not commercially sensitive.

BESL will produce annual monitoring reports, detailing the results and interpretation of the data collected at an individual scheme level and on a wider scale. The reports will be provided to statutory stakeholders. Other interest persons may also obtain access to this environmental information.

#### **4.0 Conclusion**

Environmental monitoring is essential to evaluate the effectiveness of its work and to ensure the outcomes are as predicted. The results will be used to evaluate the effects of the works against the environmental objectives.

The collection and dissemination of data and information will benefit both the Project and organisations with an interest in the Broadland environment.