

Broadland Flood Alleviation Project

Protecting



Potential Environmental Impacts of Flood Defence Works

Broadland

Project Area

The Broadland Project area is located within the Broads Authority Executive Area which has a designation equivalent to a National Park. This area contains a number of sites designated for their nature conservation interest, including sites of national (SSSI) and International (cSAC, pSPA and Ramsar) importance. The area consists of a mix of large tidally influenced rivers, broads and areas of grazing marsh, fen and alder carr woodland.

The Broads is valued for its landscape comprising of former drainage mills, grazing marshes, carr woodland and network of dykes within a virtually flat landscape. Very few vertical features exist within the open marshes landscape, apart from the former drainage mills, churches and modern-day features such as electricity pylons.

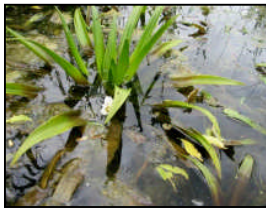
The Project Area is used extensively for navigation and recreation with public access along significant lengths of floodbank. Key industries within Broadland are agriculture and tourism.

Environmental Issues

During the design and consultation processes potential environmental impacts are identified so that they can be avoided where possible through modifications in design and approach to implementation. To inform the public and decision-makers of the likely environmental effects of a proposed flood defence improvement scheme, the project submits Environmental Statements (EIA schemes) or Environmental Reports (non EIA schemes) with their planning applications.

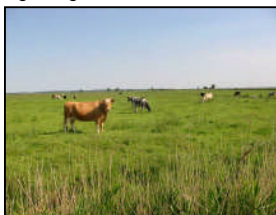
Potential Environmental Impacts:

- (a) Loss of rare habitats/species due to material sourcing and or setback

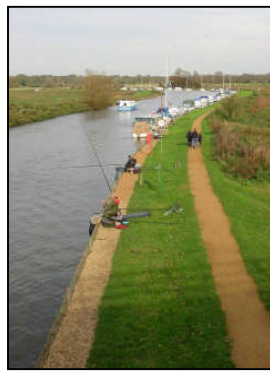


Water Soldier

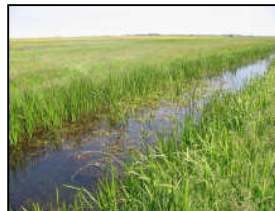
- (b) Change in land use and areas qualifying for ESA payments due to material sourcing from grazing marshes



Cows on Halvergate Marshes



Anglers, walkers and boats at Beccles (Compartment 26)



Species rich dyke

- (c) Water level and quality impact through dewatering of soke dykes

- (d) Visual impact of excavators working on floodbanks and areas of bare earth



St Benet's Abbey (SAM)

- (e) Risk of damage to sites of archaeological and cultural interest

Scope of Environmental Assessments

Environmental assessments cover all the potential environmental effects of any proposed flood defence works and a level of significance is assigned. Where significant impacts cannot be avoided, mitigation measures will be adopted to reduce impacts to more acceptable levels.

The following environmental topics are considered:

- (a) Ecology and nature conservation
- (b) Land use and local community
- (c) Water environment
- (d) Landscape and visual impact
- (e) Archaeology and cultural heritage
- (f) Navigation and recreation



Plant working on new bank at Reedham (Compartment 14)

- (f) Temporary loss of navigation through closure of waterways for in-river works such as re-piling



Closure of Short Dyke for re-piling



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Environmental: Mitigation Pre-Construction

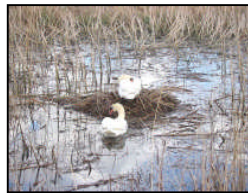
Broadland

Mitigation: Pre Construction

Where significant impacts cannot be avoided, mitigation measures will be adopted to reduce impacts to more acceptable levels. A number of Mitigation measures are employed before construction starts.



Tree and scrub clearance



Nesting swans in the soke dyke

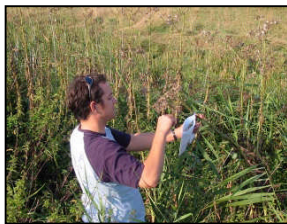
Disturbance: Water Voles

It is an offence under the W&CA 1981 (as amended) to damage a water voles place of shelter or protection. The project has an obligation to ensure appropriate systems are in place to minimise damage and that all reasonable means of avoiding damage are implemented. The following methods are used to minimise potential impacts on water voles :

- Vegetation clearance of suitable habitat to displace water voles outside of the works corridor
- Trapping undertaken where animals remain. Water voles caught are released into suitable dykes outside of the works corridor

Rare and Scarce Plants

A number of rare and scarce plants grow along the road, floodbank or folding areas, most notably marsh sow-thistle and marsh mallow. In addition, a number of other species such as water soldier are found within the grazing marsh dykes, including the soke dyke.



(a) Seed collection.

Where localised populations cannot be avoided through design, seed collection is undertaken to allow for the re-seeding or introduction of container grown plants to supplement any natural regeneration

(b) Translocation of species or habitats.

Translocation of turves or individual plants may be appropriate in some circumstances. This method has been successfully undertaken on Haddiscoe Island (Marsh Mallow) and Berney Marshes (Divided Sedge).



Relocation of marsh mallow

Disturbance: Nesting Birds

All wild birds receive protection under the Wildlife and Countryside Act 1981 (as amended) where "it is an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy its nest or eggs". In addition, it is also an offence to disturb Schedule 1 species whilst in the process of making or sitting on a nest.

To minimise the risk of disturbing (Schedule 1 species) or destroying nests (all bird species) located within the works corridor the following methods are used:

- Clearance of areas of potential nesting habitat, e.g. trees, scrub, reed/emergent vegetation
- Cleared trees and scrub to be disposed (e.g. burning or chipping) of to remove potential nesting habitat, e.g. wrens etc
- area checked for ground nesting birds, e.g. skylark (BAP species).



Vegetation clearance of the folding and floodbank, Burgh St Peter

Public access

Where footpaths require closure for Health and Safety reasons, BESL provide footpath diversions by landowner agreement



Release of water vole to a dyke outside of the works corridor



Footpath diversion Rockland Marshes

Existing Land-use

The main site compound for the works will require an area of approximately 1000m². This is usually located on grazing marsh as close to the corridor as possible. Hardstanding is laid over a geotextile to allow complete removal on completion of works prior to re-seeding of area affected.



Site compound within grazing marshes, Norton Marshes