

Supporting guidance for Coastal Embankment Breaching, Lowering or Removal

Date published: 30 March, 2015

Note : In November 2023, references to Scottish Natural Heritage have been amended to NatureScot. The link to the most recent Controlled Activities Regulations has been updated - under Consents and approvals. Broken links have been updated and the link to the Freiston Shore, Lincolnshire video has been deleted in the 'Further Information' section

The intertidal zone is the area between the high and low tide lines. The area, made up of both the foreshore and seabed, is exposed to the air at low tide, and covered at high tide. Intertidal zones include sandy beaches, rocky shores, mudflats and salt marshes. In their natural state, these areas help to reduce flood risk by dispersing wave energy during storm events and providing a natural defence against erosion and sea level rise. The variation in dry and wet areas of the intertidal zone results in a rich and diverse range of habitats and species, adapted to their specific environment.

Where coastal embankments have been built to prevent adjacent low lying land from flooding, the intertidal zone is physically reduced in size and prevented from moving inland. It is no longer able to function naturally and many or all of the above benefits are lost. The purpose of this item is to reduce the impact that embankments have on the intertidal zone to benefit flood risk. It can be particularly useful where the area available for floodwater storage is large.

This item will fund:

- removing or breaching the embankment (taking away all or part of the material that makes up the embankment so as to allow the land to be flooded by the tide); or
- lowering the embankment (reducing the height of the embankment to allow floodwater to flow over it and the land behind to be flooded by the tide).

It may also be possible to set-back the embankment (i.e. remove the embankment and create a new one further away from the coast). However, this item will only pay for flood embankment removal and cannot fund the creation of a new embankment.

An embankment should only be removed, breached or lowered if doing so does not increase flooding to other properties or infrastructure (roads etc.). This will be confirmed during the pre-works assessment described below.

Identifying the opportunity

An organisation such as the Scottish Environment Protection Agency or a local authority may have contacted you already identifying a site where removal, breaching or lowering of the embankment may help reduce flood risk. If the local authority have contacted you, this work is likely to form part of a wider shoreline management strategy that they are progressing. Alternatively, you may have identified the opportunity yourself.

Where the embankment extends into a parcel of land owned by a neighbouring land manager / owner, you should seek agreement to undertake this work together with that party. In such instances, you should consider seeking the help of a facilitator. Facilitation fees and some of the pre-works assessments (described below) can be paid for by the co-operative action fund.

Pre-works assessments and approvals

Certain pre-works assessments and approvals will be required prior to commencing work on the ground. These should include as a minimum:

You should also determine whether you need to seek planning permission from your local authority, and confirm that no protected species or habitats are at risk from the works (pre-works assessment will

include habitat and species surveys to inform this). Any works within a designated site or where protected habitats and species are present will require approval from NatureScot.

1) Options appraisal

This assessment identifies and reviews the options to modify the embankment and evaluates their relative advantages and disadvantages. It is informed by a survey of the coastal area in question. It identifies a preferred option (in consultation with the land manager and other stakeholders) and outlines additional assessments / surveys required to progress the preferred option.

2) Design and approvals

This will include details of the design of the works, including approach to construction, feasibility of the works, potential impacts, estimated costs, and maintenance requirements. It may be undertaken in two stages, with stage one outlining the design and stage two providing more detail. It will include a flood risk assessment, informed by hydraulic modelling, and engineering drawings to inform delivery of works on the ground. It will include all necessary surveys, such as topographic, hydromorphological and habitats / species surveys, and all relevant consents and approvals.

Note: Consents and approvals

You will need to adhere to all relevant regulations and obtain licenses as appropriate. These may include:

- [Controlled Activities Regulations](#)
- [Waste Management Licensing Regulations](#)
- [Marine License](#)

You should also determine whether you need to seek planning permission from your local authority, and confirm that no protected species or habitats are at risk from the works (preworks assessment will include habitat and species surveys to inform this). Any works within a designated site or where protected habitats and species are present will require approval from NatureScot.

What you should do

Your initial application should include a plan showing the locations of the embankment(s) you propose to remove or lower on a 1:2500 map and summarising how spoil material will be disposed of and how vegetation will be reinstated. Pre-works assessments and designs should be provided prior to any works being carried out.

The work required to remove, breach or lower a coastal embankment is site specific and should be carried out by a contractor with experience in such works. Movement of spoil material will need to comply with the waste management licensing regulations and may require soil testing, particularly if you are moving material off site. Care should be taken to avoid soils entering the water during the works and vegetative cover should be allowed to re-establish on any bare ground remaining after the embankment is removed.

How can you add value

Consider adopting this measure with the management option:

- [Wetland Management](#)

Also consider working together with your neighbours and accessing the co-operation action fund for funds to appoint a facilitator to oversee this process for you.

Maintenance

Maintenance is relatively straight forward compared to the implementation of works. You should ensure that livestock cannot access the area when vegetation is establishing and that the area remains vegetated by managing grazing appropriately. If erosion / scouring occur this should be repaired and the land re-vegetated.

Further information

Guidance documents

- [Defra's Common Standards Monitoring Guidance for Saltmarsh Habitats](#)
- [The Saltmarsh Creation Handbook: A Project Manager's Guide to the Creation of Saltmarsh and Intertidal Mudflat](#)(RSPB Management Guides)
[Coastal and Estuarine Managed Realignment: Design Issues Report C628](#), CIRIA, London; DJ Leggett, N Cooper & R Harvey (2004)

Case studies

- [Freiston Shore, Lincolnshire](#)