COASTAL FLOOD DEFENCES: SEA WALLS

Coastal flood defences are key to protecting our coasts against flooding, which happens when normally dry, low-lying flat land is inundated by sea water. There are both hard and soft coastal engineering methods which can be used to mitigate the risk of flooding and coastal erosion.

Sea walls are a form of **hard engineering** - these methods are often used as a temporary measure to protect against coastal flooding as they are costly and only last for a relatively short amount of time before they require maintenance. They are very effective at protecting the coastline in the short-term as they are immediately effective as opposed to some longer term soft engineering methods. However, they are often intrusive and can cause issues elsewhere at other areas along the coastline.

What do sea walls involve?

Sea walls are a solid barrier made from concrete, masonry, or gabions and are designed to prevent high tides and storm surges reaching inland and causing flooding. They can have a variety of profiles such as sloped, stepped or vertical, and are designed to withstand the force of waves for around 30 to 50 years. A number of sea walls have been constructed across the UK to reduce the risk of flooding however they require frequent maintenance so that they don't fail.

Sea wall - below Highcliffe Castle Golf Club

Advantages and Disadvantages

- ✓ Provide good, short to medium term protection.
- ✓ Ensure property, people and leisure/economic facilities are protected from the risk of coastal flooding and erosion.
- ✓ Allow the development of property and facilities up to the shore line.
- ✓ Prevent the base of cliffs being eroded, therefore reducing the risk of rock falls and collapse.

- ✗ They are very expensive.
- ✗ The force of tidal waves can scour away and erode ground beneath the wall, which can lead to failure and collapse.
- ✗ Require ongoing maintenance in the long term to ensure that they are not affected by issues such as climate change.
- ✗ They can have a negative effect on the visual aspect of the landscape.

Case Study: Rossall and Anchorsholme, Lancashire

The £63million coastal defence scheme was officially opened in June 2018 and is designed to protect and reduce the risk of flooding to 7500 homes' along with the town's tramway, schools and hospitals. The project was led by Wyre Council, the Environment Agency and Balfour Beatty and is made up of two kilometres of sea walls which have been designed to hold back major storm waves from the Irish Sea for the next 100 years. The walls have also been designed to protect against the effects of future climate change and sea level rise. The scheme has improved the local environment by creating a new ecology park on the landward side of the defences, increasing biodiversity, visual aspect and environmental footprint. It is already classed as a Biological Heritage site due to the rarer species of flora and fauna that grow in the park.

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This resource has been produced by Newground who work in partnership with the Environment Agency

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