

# COASTAL FLOOD DEFENCES: REVETMENTS

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.

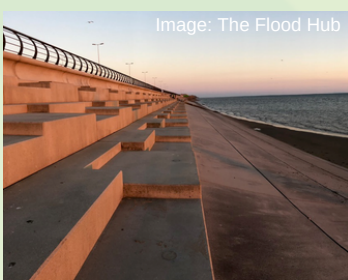
Revetments are a form of **hard engineering** - these methods are often used as a temporary measure to protect against coastal flooding as they are costly and only last for a relatively short amount of time before they require maintenance. They are very effective at protecting the coastline in the short-term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

## What do revetments involve?

Revetments are sloping structures built on embankments or shorelines, along the base of cliffs, or in front of sea walls to absorb and dissipate the energy of waves in order to reduce coastal erosion. They can be made of concrete, stone, asphalt or wood, and the height of the revetments is designed to stop waves overtopping the defence. Revetments can be both permeable and impermeable; the permeable revetments are generally built from rock or concrete armour, gabions, and timber. They reduce the erosive power of waves by dissipating their energy as they reach the shore. Impermeable revetments are continuous sloping defences made of stone or concrete which act as a fixed line of defence and are designed to act as a barrier against high tides and storm surges.



## Advantages and Disadvantages



- ✓ Impermeable revetments have a life expectancy of around 30-50 years.
- ✓ They are relatively low maintenance.
- ✗ Revetments are expensive to build, but cheaper than flood walls.
- ✗ They can have a big visual impact on the landscape.
- ✗ They can make some beaches inaccessible to locals and tourists.
- ✗ Erosion at the base of the structure can cause structure failure.
- ✗ They can disrupt natural dune processes.

## Case Study: Fairhaven and Church Scar Sea Defence Project

The Fairhaven and Church Scar Sea Defence Project replaced existing sea wall defences which were failing and reaching the end of their expected life span. The old defences were built in the 1890s and required regular maintenance and emergency repairs to prevent a breach. Potential flood wall failure at Fairhaven Lake would mean frequent tidal flooding of low lying areas, buildings, and the embankment before the highway, and at Church Scar would mean rapid erosion and flooding of low lying land at Lytham.

The £22m project was carried out to provide new coastal defences and an upgrade to the promenades along the Fylde coast at Fairhaven, Church Scar and Granny's Bay. Construction work began in March 2018 and was completed in July 2020. The scheme protects around 2400 resident's properties, infrastructure and schools from coastal erosion and flooding and aims sustain economic growth.