River Rother Flood Defence Scheme

Project Overview

The Rother Tidal Walls East (RTWE) scheme is an Environment Agency project designed to increase the level of flood protection provided by the existing embankments and defences. These improvements account for projected sea-level rise and more extreme storm surges linked to climate change. The scheme also includes new flood defence walls in locations where raising the embankments is not practical.

Over time, sections of the timber pile retaining wall downstream of the Union Channel Sluice have deteriorated, including the failure of several timber piles along a 60-metre stretch where the River Rother meets the Union Channel. As part of the RTWE works, the Environment Agency planned remedial measures to stabilise this damaged section and ensure ongoing protection for the upgraded embankments.

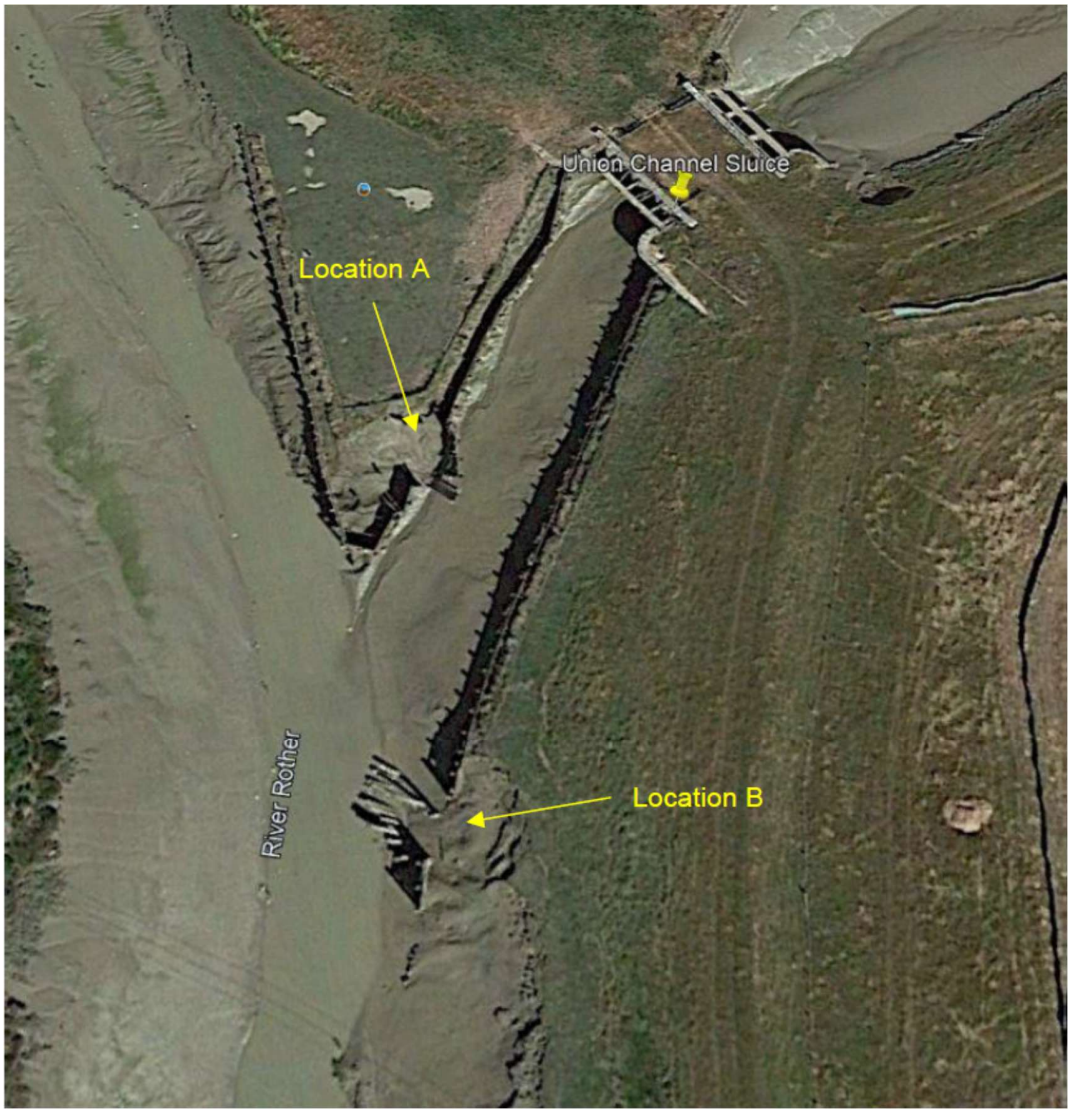
Salix specialist contracting team participated as subcontractor and materials supplier for Tier 1 Framework Contractor Volker Stevin. Salix site staff are roped access trained for slope work and water safety and rescue trained for working adjacent to a large inter tidal river. Our specialist plant included a 15m long reach with a grab to remove piles and install some

Design consultancy was provided by AtkinsRéalis. Key products included Rock-Lock (pre-filled rock mattresses with ground anchors), rock rolls, brushwood fascines and fixing stakes.

Project Location

The RTWE scheme is located on the eastern bank of the River Rother in Rye, East Sussex, following the line of the existing flood defences. It extends from Scots Float Sluice north of Rye, around the Union Channel to the pumping station, and then south along the River Rother to the Harbourmaster's Office at Rye Harbour—a total length of approximately 6 km.


Rye Foreign
(Union Pumping Station)
Scots Float Sluice to Union Channel
Union Channel
(Union Sluice)
Playden
Union Channel to Railway Bridge
East Guldeford
Kings Avenue:
Railway Bridge to Monk Bretton Road Bridge
Monk Bretton Bridge to North Point
Pumping Station
Rye
North Point to Rye Wharf
North Point PS
Rye Wharf to Harbourmasters Office
Rye Harbour
© 2018 Google


Union Channel Sluice
Location A
River Rother
Location B


Location B
River Rother
Failed timber pile retaining walls
Tie-bars
Union Channel
Location A

Rock Mattress & Brushwood Installation

Following the removal of the failed piles, additional protection was essential to prevent further scour behind the pile line, which could ultimately threaten the stability of the embankment. A combined solution using pre-filled rock mattresses and brushwood fascines was selected for the following reasons:

- Rock mattresses are capable of withstanding the high flow velocities expected in this reach of the river.
- A fully hard-engineered solution risked transferring erosion to downstream areas, where the junction between hard and soft ground would create turbulence and localised scour.
- A fully natural solution—such as brushwood alone—would not provide sufficient resilience under the expected hydraulic loading.
- Brushwood fascines create a natural transition zone between the rock mattress and soft soils, reducing hydraulic impact and promoting vegetation.

- The rock mattress installation height of 4.0 mAOD slightly exceeds Mean High Water Springs (3.85 mAOD), ensuring adequate coverage.
- Pre-filled mattresses were selected to remove the need for in-situ filling, avoiding the installation of a cofferdam and minimising time spent by operatives in or near the water. This reduced risk, improved efficiency, eliminated stone wastage, and lowered the carbon footprint through optimised material use.
- The mattresses are factory pre-filled and connected on site to form larger, robust units designed to withstand high-energy flows and wave action. Gripple ground anchors were used to secure them in place.

Additional Environmental Benefits

Rock mattresses promote the establishment of natural vegetation and support ecological enhancement. Their finer stone grading encourages silt deposition, enabling full vegetative cover where conditions allow. They also provide increased surface area for invertebrate colonisation, improving biodiversity.

Brushwood fascines have long been used as a sustainable and resilient method for riverbank protection. In this scheme, they serve as a transitional material between the rock mattresses and existing marsh habitat, encouraging silt accumulation and vegetation development along the riverbank.