



Design  
Build  
Products  
Nursery

# River Roding Enhancement

The River Roding is an inter-tidal river, and these works were undertaken 100m upstream of the Barking Barrier, Greater London. The works were part of an Environment Agency environmental enhancement project with both flood defence and nature conservation in mind.



Inter-tidal rivers are subject to two daily periods of inundation with some rivers having an inter-tidal range (water depth) of 5-6 metres. The inter-tidal alluvial soils are subject to rapid drawdown which leaves the riverbank very saturated and results in significantly increased pore water pressure that reduces the shear strength of the soil and shallow surface failures are common.

[www.salixrw.com](http://www.salixrw.com)  
Email: [info@salixrw.com](mailto:info@salixrw.com)  
Tel: 0330 002 1788

**Salix**



Design  
Build  
Products  
Nursery

However, in areas with mature strands of vegetation cover, noticeably on the River Roding, with *Scirpus maritimus* (Sea club rush) and *Phragmites australis* (Common Reed) in the upper bank area, the root and rhizomes appear to create drainage paths, reducing pore water pressure, decreasing the bulk weight of the bank and increasing soil shear strength and stability.

It has been noted that where cyclic deposition exceeds erosion and sediment accretion occurs then vegetated establishment is more likely. One key objective for a bioengineering revetment is to establish this positive depositional process.



Naturally, seed within the inter-tidal sediments is deposited and colonises. Brushwood fascines or unplanted Coir Rolls can be used to create sediment traps to build up sediment after each inter-tidal event. In the case of the River Roding two techniques using Brushwood fascines were used.

In the mouth of the inlet to the backwater a brush mattress technique was installed, whereby the entire surface of the riverbank is covered with 300mm of brushwood held in place by a grid of 1.4m long chestnut posts. The posts were driven into the alluvial sediment using an adapted piling hammer attached to the end of a *Salix* long reach excavator. The second method was used on the upper banks with lower water depths and consisted of parallel strips of fascines.

*Salix* has been a lead consultant working on a guidance manual “Estuary Edges: Ecological Design Guidance” for inter-tidal bioengineering design. Clients are the Environment Agency and the Thames Estuary Partnership.

[www.salixrw.com](http://www.salixrw.com)  
Email: [info@salixrw.com](mailto:info@salixrw.com)  
Tel: 0330 002 1788

**Salix**