River Thames Intertidal Habitat, Woolwich, London, UK

Client: Oxley Developments

Location: Royal Wharf, North Woolwich Rd, London E16 2SB

Purpose: To receive site surface water run-off, improve pollution control and mitigate natural habitat loss along the River Thames bank.

Design Team: Project Managers - Acumen Portfolio Solutions.
Civil Engineers - Hemsley Orrell Partnership.
Landscape Architect -Townshend Landscape Architects.
Ecologist - Susan Deakin Ecology

Landscape Contrator: Kings Landscapes

Sub-contractor: Salix Rivers and Wetlands Ltd.

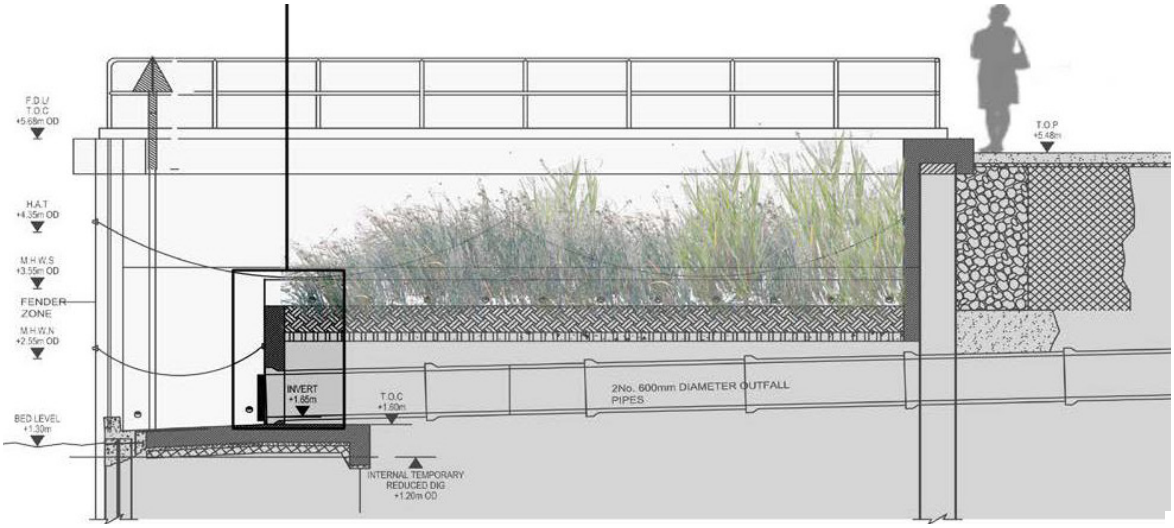
THE DESIGN

Due to the nature of the flood defence along the River Thames the natural extent of intertidal river habitats are limited, however these habitats, in time, have a high importance for fish and invertebrates. Taking this into consideration the overarching design philosophy for the Royal Wharf intertidal terrace is to improve pollution control and increase potential natural habitats along the river bank.

Establishing riverside marginal planting in a tidal estuary requires careful choice of plants, an establishment technique and stabilising the growing medium for the short and long term. The Royal Wharf intertidal habitat is a successful example.

Salix were consulted by Townshend Landscape Architects and Susan Deakin, ecologist, to devise a viable system of establishing a reed bed. A level horizontal ‘planting’ bed, 220m wide, was created at a level that allows alternate flooding with the River Thames tides, using the following design considerations:

- The plants must cope with brackish water.
- A level bed with alternating dry periods or sudden inundation.
- Allow for a rush of water, and often wave energy that reflects back off the vertical walls, creating a zone of extra turbulence.
- When emptying, the plants, the sediment accreted and the base growing medium must all be retained within the bay.
- Provide a long-term reed bed solution as a potential habitat.



TOWNSHEND LANDSCAPE ARCHITECTS

Salix

THE PLANTS

Plants were pre-established in 300mm diameter biodegradable Coir rolls, laid side by side with Rock Rolls. The plants had to be robust enough to colonise the coir rolls and survive being placed directly into the bay environment. The Common reed, *Phragmites australis* was used, which tolerates periods of wet and dry as well as coping with brackish water. The reeds were established off-site by Salix Rivers and Wetlands in their 'wet bed' nursery, in Norfolk.

The reed bed immediately after installation

High tide covering the reed bed

Wildlife opportunities

The reed bed in Spring 2017

Rock Roll around edges have prevented wave scour

THE CONSTRUCTION

The combination of alternate permanent netted Rock Rolls and the bio-degradable Coir Rolls provided a range of sediment traps that benefit the biodiversity of the habitat in the future, enabling plant establishment and maturation. The Rock Rolls were 40mm to 75mm graded stone, encased in a polypropylene net 300mm diameter. All the Coir Rolls and Rock Rolls were stitched together net-to-net and anchored to the base material. This unified mass provides resistance to the energies of the incoming tide and draw-down. The Rock Roll component of this system provides long-term stability to the whole reed bed system once the biodegradable Coir Roll core has degraded. These Coir Roll nets will, in time, be filled with a net-work of roots and rhizomes that have also grown into the rock of the Rock Rolls.

Sediment collection after 2 years

The established reed bed in Autumn 2017

RESULT

Two years on the reed bed still successfully fills the bay and is delivering the desired result in creating a potential environment for other fauna and flora.