Engineered or not?

A case study of Summerlock Stream
Salisbury

Engineering the Green Way
A Case for Green Engineering in a SSSI Parkland Setting.

- Salisbury's Queen Elizabeth Gardens provide an important amenity for families and tourists during the warm summer months.
- Access is poor, so children have to 'bank-slide' into the river.

Bank ‘Poaching’.

- Wholesale destruction of protective riparian vegetation has left the bank face bare and vulnerable to erosion.
- Rapid bank retreat and a significant loss of parkland has continued unchecked for years.

Restoration Assignment.

- Salisbury District Council, asked for the following criteria to be taken into account:

a) Reclaim lost land.
b) Provide a long-term bank protection solution.
c) Improve public access to the river.
d) Improve aesthetics of the site.
e) Improve bio-diversity in a SSSI, cSAC setting.

Design Specifications:
Two part installation.

1) A vertical geotextile revetment to retain reclaimed land.
2) A secondary marginal shelf to improve public access to the river.

- The structure combines traditional engineering materials with sustainable woodland products.
- English Nature (Wiltshire Team) welcomed the experimental use of engineering materials, having carefully considered the limitations of the site.

The 'Engineered' Structure.

- The structure on completion, presents a stark, engineered finish.
- The strips of soil on either bank indicate the degree of land reclamation and channel narrowing.
- The project was hydraulically modelled as part of the EA consenting process (flood prevention).

Detail: Completed Structure.

- The skilled use of rock netting enabled the construction team to mimic a sloping riverbank profile.
- The hard vertical face associated with traditional engineering schemes has been avoided.
- The engineering materials have a shelf life in excess of 100 years.
- The structure is accessible to plants, invertebrates, water voles and brook lamprey.

Introducing ‘Bio’ to the ‘Engineering’.

- Over 15 species of native British plants were planted into the structure in the early spring.
- Root systems are essential to strengthen and consolidate the 'engineered' structure.
- Suspended solids are filtered from flood waters and the margins accrue on both banks.

Plant Colonisation:

- Six months after project completion, plants have colonised over 50% of the revetment surface.
- Children can now step down onto the engineered riverbank at any point along its 120m length.
- The geotextile casing protects root systems from destructive pedestrian activity.

Natural Bank Side Cover.

- The geotextile shelf incorporates an overhang to provide bank side cover for various fish species.
- Trailing marginal vegetation protects the toe, and deflects erosive currents into the central channel where they belong.

The 'Engineered' Channel 18 months later.