Salix River & Wetland Services Limited

Offices at:
Blackhills Nurseries
Blackhills Lane
Gower
Swansea
SA2 7JN

Croxton Park
Thetford
Norfolk
IP24 1LS

Eagle Tower
Montpellier Drive
Cheltenham
GL50 1TA

The Hayloft
Blakenhall Park
Bar Lane
Barton Under Needwood
Burton-on-Trent
Staffordshire DE13 8AJ

T: 0870 350 1851
F: 0870 350 1852
E: info@salixrw.com

www.salixrw.com

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Salix provide sustainable solutions to the challenges found in soil and riverbank erosion and restoration projects. We also specialise in spillway and shoreline protection, inland dredging, wetland ecological enhancement and habitat creation schemes.

Either operating as a principal design & build contractor or a specialist sub-contractor, Salix are able to field our own plant and experienced installation teams, supported by strong in-house technical support. Salix are the only UK manufacturer and Europe’s largest producer of coir fibre rolls for erosion control and wetland habitat creation. Our in-house native wetland plant nurseries produce high quality pre-established coir products for small specialist schemes to landmark projects such as the 2012 London Olympic Wetland Park (front cover). Working in partnership with Tensar, Salix offer the world’s highest performing range of Composite Turf Reinforcement Mats – VMax C350, SC250 and P550. These soil erosion control products are used extensively for spillway protection, high energy watercourses, drainage channels and steep slopes often replacing hard engineering. We also manufacture a broad range of other bioengineering products with performance led specifications allowing engineers to specify with confidence and
compliment the core products in our range. Utilising innovative bioengineering solutions, allied with our capabilities in more traditional civil engineering techniques, we aim to build with nature in delivering cost effective, environmentally sensitive solutions that compliment the natural environment, add to biodiversity and improve water quality.

Salix are founding members of the “European Soil & Water Engineering Group” (ESWEG) a Europe-wide network of erosion control and bioengineering experts. Working closely with companies from France, Germany, Holland, Spain and Scandinavia allows us to expand our knowledge base and expertise. Collectively the members of ESWEG have completed over 1000 bioengineering projects. ESWEG are responsible for new, innovative products within the industry and carry out extensive research and independent testing. Further afield, Salix also have a close relationship with bioengineering companies in the USA and enjoy exclusive UK rights to a range of Tensar soil erosion control products which are now also manufactured in Europe.
Design

From concept to completion, our experience, design capability and installation teams deliver sustainable bioengineering techniques that address the challenges found in scour protection, soil erosion, habitat creation and mitigation projects.

We recognise that certain components of any project may require the use of concrete, steel or imported aggregates, however our designers always work to minimise the impact of these hard techniques, proving that a mix of hard and soft techniques can still be considered a bioengineered solution. Our past projects have demonstrated that there are cost savings in using bioengineering solutions in place of hard revetments and that our environmentally sensitive revetments are often more durable.

Employing a solutions driven specialist such as Salix at concept stage can bring tangible benefits to your project. Salix can demonstrate solutions designed in accordance with the Water Framework Directive particularly in regards to ecological concerns in existing degraded bodies of water and the control of diffuse pollution such as sediment from soil erosion.

Salix offer specialist advice at design stage to clients such as Contractors, Engineers, Landscape Architects and Ecologists. We provide design calculations and sections, performance data, specification sheets and indicative costs, and can often give value engineered alternatives to main contractors on site.

Below: typical cross section of lowland stream channel restoration

Replacing an existing concrete lined drainage channel using our V-Max C 350 product to provide a greatly enhanced channel from a biodiversity and sustainability viewpoint in accordance with SUDS principles.

“ Atkins has worked with Salix on a number of projects, collaborating on design concept, trialling and implementation. We have found their experience valuable in delivering cost effective and environmentally functional solutions.”

Insurance
Salix carry Professional Indemnity Insurance for ecological works with specific cover for erosion control projects and their design.
Riverbank Erosion Control

Bank erosion is a natural process and is an important source of sediment for natural river systems. Indeed, certain habitats and species would not exist were it not for actively eroding banks.

Where accelerated erosion occurs, usually as a result of human activities, watercourses, rivers and channel systems are thrown out of equilibrium and damage is done which nature alone cannot repair. This loss of natural balance can further threaten adjacent land with subsequent potential for damage to infrastructure and property.

Salix are the UK’s leading riverbank erosion control specialist, having undertaken many kilometres of bioengineering and structural revetments throughout the country.

River Restoration

We have a proven track record for providing effective mitigation solutions to help protect and enhance the status of aquatic ecosystems.

Salix work within the context of The Water Framework Directive towards achieving Good Ecological Status, or in the case of heavily modified water bodies-Good Ecological Potential.

Salix are very experienced in working on all river types across the UK and are regarded as a leading authority for bioengineering techniques, which often form a key part of river restoration and enhancement works.

Salix can provide a comprehensive range of services for lake construction and restoration. We undertake earthworks and dredging, lining, water control structures and wetland planting.

From urban lakes to reservoirs and inter tidal shorelines, Salix can advise and construct suitable bioengineering solutions that stop erosion and provide diverse marginal and emergent habitat.

Most bioengineering techniques are suitable for the long-term protection of eroding or exposed lake and reservoir shorelines. A wide margin of wetland plants absorbs wave energy whilst supporting valuable wildlife habitats.

Lakes and Shorelines

Wetlands Water based Civil Engineering

River Dulais restoration during works

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Salix specialise in working within sensitive environments including SSSI’s and SAC sites. We employ a highly trained workforce that has experience of working in such environments often using specialist low ground pressure machinery running on bio oils. We also have experience of access within sensitive sites using floating and amphibious machinery.

We regularly work for statutory bodies such as the Environment Agency, Natural England, SEPA and Countryside Council for Wales. We also have extensive experience of working within the framework of the statutory consenting process for designated sites, and our innovative designs and sensitive approach to works on the ground assist our clients through this process.

We have experience of implementing control methods to prevent the spread of invasive species and the relevant treatment.

Our expertise encompasses a range of mitigation measures creating new habitats for fish, newts, water voles and other protected species.

We work with natural processes and materials to create robust, ecologically stable systems that do not require high levels of maintenance.

Our work here at Soham was specifically designed to provide habitats for water voles.

Our solutions are found across many sectors including Rail, Commercial Development, Flood Defence Schemes and major infrastructure projects.
Salix are specialist contractors with extensive knowledge and experience in delivering inland dredging projects across a wide range of water bodies. We operate a range of technical plant and equipment and have developed methodology to suit the most sensitive sites ensuring the protection of water quality and features of ecological interest.

We offer comprehensive environmental support and advice across all dredging projects. Services include sediment characterisation, regulatory liaison, licensing, ecological surveying, monitoring and where suitable habitat enhancements. Our integrated approach ensures that we can provide you with a range of environmentally sound and cost effective solutions for the management, reuse and disposal of sediment.

Salix are also able to undertake more traditional wet civil engineering works such as sheet piling, rock armour and other hard engineered solutions from the land or floating access.
Soil Erosion Control

“The rapidity of grass growth when using HydraCX is exceptional”
Network Rail

Salix offer a wide range of soil erosion control solutions ranging from biodegradable options for less severe erosion protection through to permanent high energy critical asset protection such as spillways and flood embankments.

Our Tensar VMax range of Composite Turf Reinforcement Mats (CTRM's) including C350, SC250, F550 and shear stress turf have been approved by Panel Engineers under the Reservoir Act and used extensively throughout the UK on major capital works. Salix are Tensar's UK erosion control specialists and distributor. The entire range has independent testing performance data and design software for engineers involved in this area of expertise.

Salix also specialise in hydraulically applied erosion control solutions such as HydraCX.

Our areas of expertise include riverbanks, rail and road embankments, spillways, drainage channels and steep slopes.

HydraCX being sprayed onto regraded M25 embankments to prevent erosion and establish vegetation rapidly without importing topsoil.

Conwy FAS spillway protected with VMax

Salix offer a range of soil erosion control products, please see our Products Section for further details

VMax C350 applied to drainage channel
**Our Products**

**Revetments & Habitat Creation**

Rock Rolls and Rock Roll Mattresses are a robust and permanent revetment for use around reservoirs, shorelines, lake edges, streams and river banks. They are cost-effective revetments that are suitable alternatives to rock rip rap and gabions in many scour applications.

**Native Wetland Plants**

Salix are the UK’s largest grower of native wetland and wildflower plants.

**Live Willow Revetments**

Salix are highly experienced in constructing all types of living willow revetment works.

**Coir Rolls: pre-planted growing at our nursery**

Coir Rolls are an organic, living revetment that provide erosion control and rapid vegetation establishment. Salix have developed a range of specific species mixes for use in all types of water bodies.

**Coir Pallets**

Salix manufacture and pre-establish high-quality Coir Pallets with mature marginal vegetation.

**Coir Rolls**

**Rock Roll Mattresses**

**Floating Islands**

Floating Islands provide valuable ecological habitat, fish refuge cover and water purification within open water environments.

**Brushwood Fascines**

Brushwood Fascines are constructed from coppiced branches for use as a sustainable revetment.

**V-Max C350**

The VMax range of products offer long term erosion protection and vegetation establishment whilst permanently reinforcing vegetation. All our VMax turf reinforcement mats are built around a permanent, non degradable three dimensional matting structure and consist of either 100% synthetic components or a combination of synthetic and natural materials.

**V-Max P550**

**V-Max Shear Stress Turf**

These unique systems enable vegetation to be used in areas where forces exerted by water exceed the shear limits of unreinforced vegetation. Typical applications include high flow channels, stream banks, shorelines, spillways and areas where rock rip rap, articulated concrete blocks and poured concrete were once the only suitable alternatives for erosion control.

**Erosion Control**

**V-Max P550**

**V-Max Shear Stress Turf**

**Coir Rolls:** pre-planted growing at our nursery

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