

SocEnv Soils and Stones project:
Case study demonstrating one or more of the ten principles of good
soils and stones management

Nature Based Solutions in the Water Industry

Institute of Water



*A covered water service reservoir in Brighton city centre, UK – a haven for chalkland soils and Lady's Tresses Orchids (*Spiranthes spiralis*). Credit: Robert Earl CEnv.*

Summary

In summer 2023, the Institute of Water published a series of articles from water industry practitioners, consultants and contractors to highlight progress with [Nature Based Solutions](#). The articles described initiatives such as collaboration with farmers to protect water sources, sustainable urban drainage systems, sustainable catchment management, and reedbed creation.

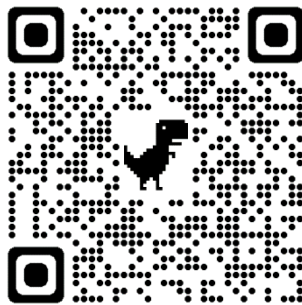
The purpose of IWater's special magazine feature on Nature Based Solutions was both to inform and inspire its 16,000 readers, and to demonstrate the opportunities available in the industry for sustainable approaches to water and wastewater management. While primarily focused on maintaining water quality in the natural environment, a paper from Stantec highlighted how Nature Based Solutions *"deliver carbon reductions through a process called biological carbon sequestration – the capture and storage of CO₂ in vegetation and soils."*

Why Nature Based Solutions?

[The International Union for Conservation of Nature](#) defines Nature Based Solutions as *"actions to protect, sustainably to manage, and to restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature... They target major challenges like climate change, disaster risk reduction, food and water security, biodiversity loss and human health, and are critical to sustainable economic development."*

[Ofwat's PR24 methodology](#) encourages UK Water Utilities to adopt Nature Based Solutions as part of their quinquennial business plan submissions: *"One way companies can deliver wider environmental and social benefits is by making more use of nature-based solutions."*

Water utilities have long been custodians of the natural environment, with duties, for example, [to conserve and enhance biodiversity](#). The submission of the PR24 Business Plans has, however, strengthened the resolve of water companies to find ways of treating water and wastewater using more sustainable methods than the steel, plastic and concrete solutions of the past.



Scan the QR code above for a link to the Summer 2023 IWater Magazine articles

Meeting the ten principles:

Principle	How the principle was met in this project.
1. Implement soils and stones management practices to drive sustainable economic growth.	The articles demonstrated how growth in the water industry can promote sustainable land management practices, carbon capture and soil improvement.
2. Preserve, protect, and enhance the value of all soils and stones in situ.	Water Industry collaboration initiatives with landowners to protect water resources will protect natural soils in situ.
3. Promote and enhance the inherent value of soils and stones as part of a wider integrated environmental system (e.g., for carbon sequestration, food security and biodiversity).	Nature Based Solutions in the Water Industry PR24 business plans will capture carbon in soil biomass, and enhance soil biodiversity.
4. Use a common standard for soil health in relation to land-use, taking underlying soil conditions and functions into account in the management of land.	N/A
5. Use common quality standards for soil based on principle #4 for excavated soils, stones and dredgings to be used in specific end-uses.	N/A
6. Understand and identify site specific soil conditions at the start of project planning or change of land-use. Define the status of any excavated soils and stones according to their value as an end-use resource and avoid the intention to discard them as surplus to the needs of the project. Protect undisturbed soils to enhance soil health.	Nature based solutions will protect urban soils through the adoption of Sustainable Urban Drainage Systems.
7. Develop and implement a resource hierarchy for the management of land, soils and stones.	N/A
8. Implement financial metrics for the life cycle of all projects based on the impact on soil value in order to drive the market for offsetting (e.g., metrics for biodiversity loss, carbon	Although not explicitly stated in the articles the Water Industry aims for net zero and biodiversity net gain can be helped by using offsets from Nature Based Solutions.

sequestration and loss of food security).	
9. Implement a national policy progressively to harmonise legislation, regulation, best practice guidance and monitoring programmes to protect soils. Include the fields of planning, land contamination, forestry, agriculture, ecological restoration, and waste management. Aim to promote integrated markets for soils and stones, offset trading and policies thereby allowing land values to reflect optimum soil health based on metrics in principle #4.	N/A
10. Periodically benchmark the natural and economic value of UK soils against both base-line UK and international metrics, taking into account global social, economic and environmental sustainability (e.g., the supply chain impacts of ensuring UK food security, and the valuation of soils and stones).	N/A



A raw water lagoon occupying a former clay pit near Rochester UK: The surrounding banks have been allowed to rewild naturally. Credit: Robert Earl CEnv.

Lessons learned: The IWater Summer 2023 Magazine show how the principles of good soils and stones management can be effectively shared with practitioners, consultants and contractors. Case studies can stimulate ideas and practical solutions, promoting sustainable economic growth in the Water Industry through Nature Based Solutions. A [follow-up article](#) in the autumn 2023 magazine demonstrated this.

About the author: Robert Earl FIWater CEnv is a retired environmental governance and risk specialist with extensive water industry expertise in pollution prevention and waste management.