



Essex SuDS and green infrastructure in school's programme

project overview

Schools typically have expansive, impermeable surfaces such as large roofs, playgrounds, and car parks. These hard surfaces generate massive amounts of surface water runoff. Capturing or slowing the flow of water here prevents it from overwhelming local street drains.

SuDS act as nature-based solutions with interventions such as rain gardens, planters, and swales helping to manage rainwater where it falls, rather than relying solely on traditional, often overwhelmed, underground pipe networks.

key facts

- SuDS retrofit scheme
- Environmental construction
- Design and build project

the summary

Carrick Construction delivered the installation of retrofit sustainable drainage systems (SuDS) across six schools in Essex, as part of a wider programme led by Group colleagues at The Environmental Protection Group (EPG). The project was delivered in partnership with Essex County Council, and funded by the Department for Education and the Environment Agency. Delivering a design and build in partnership with Group company EPG provides a seamless solution for the client, with one point of contact giving accountability and technical assurance.

Working within live school environments, the project involved the construction of over 50 SuDS interventions designed to reduce surface water flood risk, improve water management and enhance outdoor spaces.

From concept through to completion across the sites at Hilltop School, Manuden School, Rayleigh School, Shenfield School, St Michaels Church of England Primary School and Upshire Primary Foundation School, the scope included the installation of rain gardens, bioswales, SuDS planters, permeable surfaces and associated drainage infrastructure. Works were undertaken within constrained sites, requiring careful coordination, phased delivery and a strong focus on safety and programme.

Carrick Construction's involvement from early stages ensured the specification was exact to the design, enabling efficient delivery across all six sites within a tight programme.

the challenge

The construction phase presented a number of site-specific and operational challenges:

- **Live school environments**

Works were carried out within fully operational schools, requiring strict safeguarding measures, controlled access and minimal disruption to day-to-day activities

- **Restricted access and space**

Tight site constraints limited plant access and material storage, requiring careful logistics planning

- **Programme constraints**

Delivery needed to align with school calendars, with key activities undertaken during holiday periods

- **Ground conditions and existing infrastructure**

Variable ground conditions, existing drainage networks and buried services required adaptable construction methods

- **Multiple concurrent sites**

Delivering works across six locations simultaneously required consistent quality control and coordination

These constraints demanded a flexible, well-coordinated construction approach to maintain programme and ensure safe delivery.



the solution

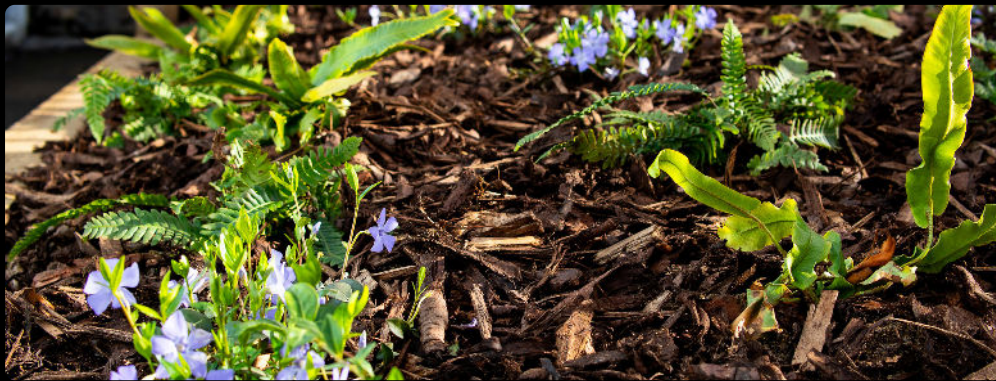
Carrick Construction adopted a proactive and collaborative approach to construction, working closely with Group colleagues at EPG and the wider project team to ensure efficient delivery.

Key elements of the approach included:

- Phased construction programming, aligned with school holidays and operational requirements to minimise disruption
- Use of compact plant and equipment, enabling access within restricted environments
- Off-site fabrication of selected SuDS components, reducing on-site construction time and improving quality control
- Ongoing coordination with design teams, allowing real-time adjustments in response to site conditions
- Robust site management and safeguarding protocols, ensuring safe working practices at all times

Construction methods were adapted to suit each site, with a focus on practical, buildable solutions that maintained the integrity of the SuDS design while responding to real-world constraints.

Early engagement with suppliers and stakeholders also enabled the incorporation of cost-effective materials and bespoke elements, supporting delivery within a fixed budget.



the result

Carrick Construction successfully delivered the SuDS retrofit works across all six schools within a compressed programme of just over four months.

Key outcomes include:

- Installation of over 50 SuDS features, forming integrated drainage systems across each site
- Reduced surface water flood risk, achieved through effective on-site water management and attenuation
- Efficient delivery within live environments, with minimal disruption to school operations
- High-quality construction, supported by off-site fabrication and coordinated delivery
- Enhanced external spaces, integrating functional drainage with landscape and play features

The project demonstrates Carrick Construction's ability to deliver complex SuDS schemes within constrained, operational environments, combining practical construction expertise with a collaborative, solutions-led approach.

