



National Green Infrastructure Facility

Urban Green DaMS (Design and Modelling of SuDS)

Urban Green DaMS (Design and Modelling of SuDS)



Sustainable Drainage Systems (SuDS) are widely used for managing road runoff and slowing water movement through an urban landscape, playing a key role in reducing urban flood risk. Vegetated bioretention cells (often referred to as 'rain gardens') are one of the most simple, practical and reproducible SuDS options and can be easily retrofitted into urban spaces to deal with surface water from roads.

Current industry guidance provides design suggestions for SuDS, but no quantitative indications on their hydrological performance. The Urban Green DaMS (Design and Modelling of SuDS) project aims to provide required modelling tools and parameter values to inform robust design guidance equivalent in quality to that for pipes and other hard engineering interventions, to enable the widespread implementation of vegetated bioretention cells for stormwater management.

This work uses four intensively instrumented lysimeters at the NGIF to address substantive research questions relating to the effectiveness of bioretention cells at reducing urban flood risk. Urban Green DaMS aims to:

- Quantify evapotranspiration and hydraulic conductivity;
- Propose an alternative to imported growing media based on minimally-modified in-situ urban soil;
- Demonstrate the flood risk mitigation potential of bioretention systems in representative urban contexts;
- Provide a framework for probabilistic SuDS design and performance specifications.



**For more information on this project,
please contact:**

Dr Ross Stirling: ross.stirling@ncl.ac.uk

Prof Richard Dawson: richard.dawson@ncl.ac.uk

Dr Daniel Green: daniel.green@ncl.ac.uk

green.infrastructure@ncl.ac.uk

**National Green Infrastructure Facility
Urban Sciences Building
Newcastle Helix
NE4 5TG**



UGDaMS



ugdams.sites.sheffield.ac.uk

