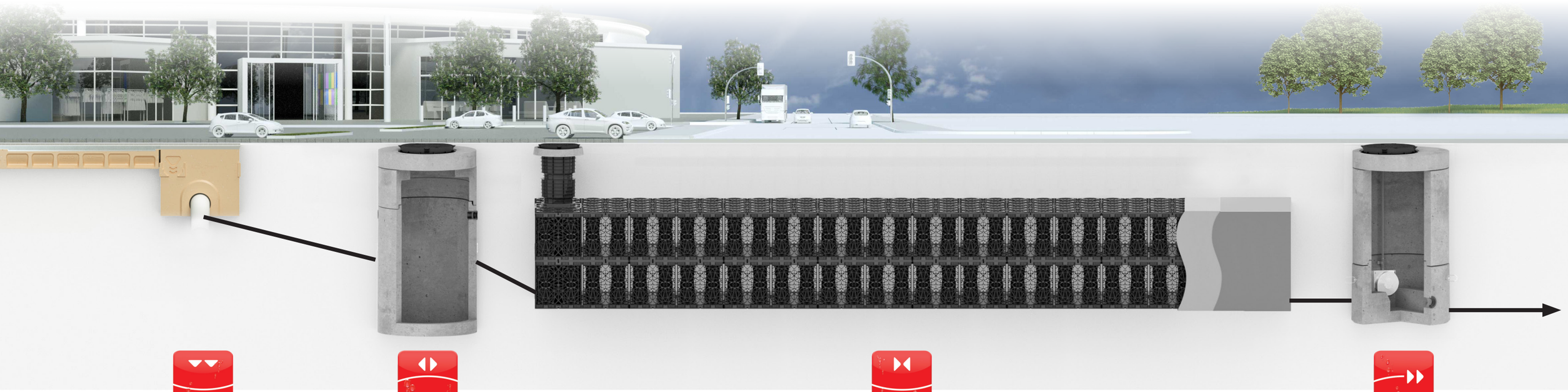
The Surface Water Management Cycle



Where surface water management and water protection begins

Surface water management begins with an assessment of the hydrological demands on the landscape of the project; the rainfall and topography from which a surface water solution can be devised. ACO provides expertise in both the assessment, product solutions and optimum layouts to collect the surface water across the site.

In hard surfaced areas the extensive range and capacity of ACO channel drainage products offer a high intercept performance across the total length of the channel run, and reduce the occurrence of ponding or streaming across site.

The safety and convenience of people, buildings and traffic is assured and surface water is managed on to its next stage in the water management process.

Achieving the right water quality

Water quality is an important factor when designing a surface water management solution because surface water run-off is at increasing risk of contamination from the greater urbanisation and transportation demands on the environment. Policy and planning guidelines require water quality is taken into account to prevent contamination of surface and groundwater resources and if the untreated water is discharged into the natural surroundings it could endanger plant and wildlife, so therefore preventative methods must be put in place.

These contaminations come in many forms, such as siltation containing suspended Hydrocarbons and heavy metals, tyre wear, brake dust, soot and sediments, as well as de-icing products used within winter months.

ACO offer a number of treatment units to deal with water quality including heavy metal separators and petrol/ oil interceptors. These have even been combined with swales, so the clean water can nourish an onsite wildlife area and allow wildlife and biodiversity to flourish.

Reducing surface runoff to a natural level

With increasing urbanisation larger areas of landscape are being covered with impermeable surfacing and so the risk of flooding increases. The natural water cycle of infiltration, evaporation and evapotranspiration is hindered and solutions such as ACO StormBrixx can be used to store and control the surface water runoff rate down to more natural levels. The geocellular system can be used for infiltration and attenuation, as well as Sustainable urban drainage (SuDS).

ACO StormBrixx can help support the sewer network by providing capacity to meet these higher risk flooding scenarios, and its use in SuDS schemes has allowed it to protect surrounding water networks and inhabited areas, through a controlled discharge into the groundwater, that mimics natural infiltration.

Control discharge rate to the required level

To meet the struggling capacity of sewer networks and natural waterways, water discharge rates are addressed on each site, with Orifice plate and Vortex flow controllers as the two main methods of discharge control.

ACO have solutions for both, with units usually sized to match the previous run-off rates or a greenfield equivalent to ensure that the infrastructure and environment are not put under strain. Another product that controls the discharge rate is the ACO SuDS Swale Inlet with a flared and bobble design, which protects the outfall area from erosion by slowing the speed of water entering here.