Investing in sustainable water resources

Over the last three decades, rapid and intense urban development has directly impacted on the environment. This includes the waste of limited resources, such as fresh water, and the degradation of downstream watercourses and riparian habitats.

South Africa is a water-scarce country, receiving approximately 400 millimetres of rainfall per year according to government[1], less than the world average of 990 millimetres per year according to the United States Environmental Protection Agency (EPA)[2]. Our municipal water treatment plants are under increasing pressure to supply growing urban centres, with limited investment in the expansion of services.

At Redefine, we recognise that now, more than ever, the responsibility for creating sustainable developments lies on the shoulders of private property owners.

Wonderboom Junction Shopping Centre in Pretoria is situated on the banks of the Apies River, a watercourse significantly degraded by intense and frequent urban rainfall that is high in pollutants. The area also has high levels of groundwater, which have (at times) caused intermittent flooding, damaging critical infrastructure, such as elevator and escalator shafts.

The problem was clear, and the Redefine team was committed to finding a solution that not only addressed the risk of flood damage, but could also support the company's broader water management goals.

Specialist external consultants were engaged to investigate groundwater quality, how water levels could be managed, and how water, in general, could be better used.

The investigation highlighted an abundance of groundwater, fit for human consumption once filtered, beneath the property as well as the viability of a potential stormwater system.

To implement the improvements, we installed a groundwater extraction and storage system. Furthermore, we repurposed the existing stormwater retention pond, a below-ground concrete tank of 556 000 litres in capacity with 278 000 litres of live storage, to be a **rainwater harvesting facility.** Filtration, pumping and plumbing were installed. Based on the ratio of demand to storage, the tank is predicted to have sufficient volume to meet the development's demands through the dry season. Furthermore, we have also installed additional metering to monitor water usage and inform our decision-making.

The investigation also found that rainwater could be used to

- ☑ Clean out the storm water reticulation
- ☑ Clean and maintain the rainwater attenuator, where rainwater is stored before distribution
- ☑ Flush public toilets, instead of relying on municipal water to do so

The system has been functioning since December 2021; initially the rainwater was only used to flush public toilets and wash common passages and walkways. We have since extended its use to supply the main waste-handling areas, where waste bins are washed, and to irrigate the centre's landscaped areas.

On average, the centre uses 20 000 to 25 000 litres of rainwater every day – reaching the 2 000 000 litre milestone by April 2022.

The system has also reduced our municipal demand by an impressive 14% to 15%, reducing pressure on the municipality, and positively impacting on the Apies River environment by attenuating inflows and removing pollutants.

By using storm water responsibly, we are able to achieve not only benefits for the natural environment on which we rely (by limiting our environmental impact) but also commercial gains. The investment serves to drought proof our asset as well as reduce tenants' costs and achieve financial savings.

This project demonstrates our commitment to managing the most sustainable spaces as **a force for good** and aligns with our selected United Nations Sustainable Development Goals (UN SDGs), particularly:

UN SDG 6: *Ensure availability and sustainable management of water and sanitation for all*

AND

UN SDG 11: *Make cities inclusive, safe, resilient and sustainable*

The project also aligns with our goal to reduce the amount of water withdrawn from municipal and borehole sources, which forms part of our sustainability-linked bond funding strategy, and highlights our commitment to live up to our promises through our dedication to finding innovative solutions to problems that face our key stakeholders.

We believe that initiatives of this kind in the property sector are crucial to ensuring that we collectively optimise how we use the natural resources available to us, with the benefits of these immediate savings stretching beyond the boundaries of our properties by contributing towards a more sustainable future.

Regards

The Redefine ESG team

[1] *www.gov.za*
[2] *www.epa.gov*