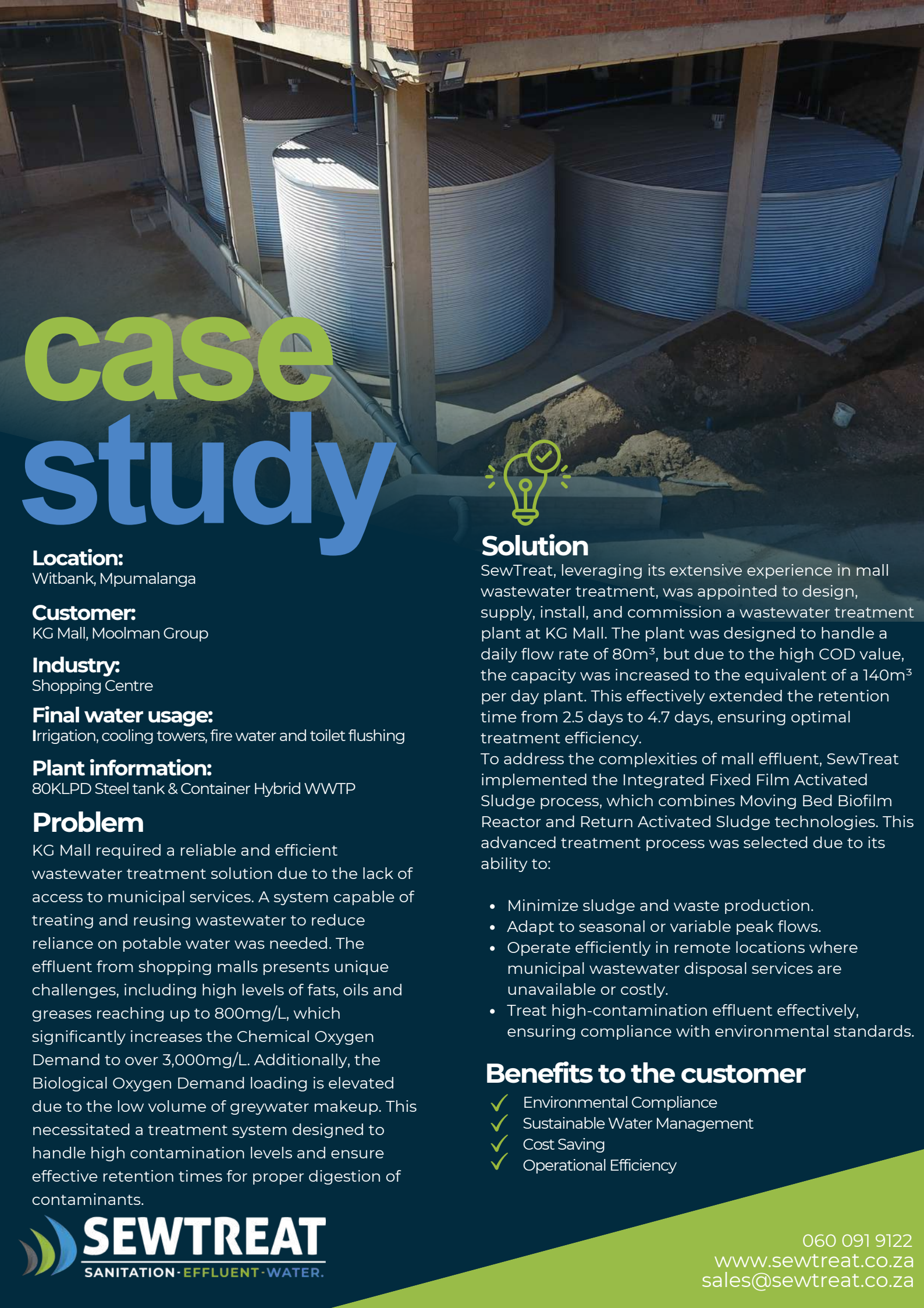




case study

Location:

Witbank, Mpumalanga

Customer:

KG Mall, Moolman Group

Industry:

Shopping Centre

Final water usage:

Irrigation, cooling towers, fire water and toilet flushing

Plant information:

80KLPD Steel tank & Container Hybrid WWTP

Problem

KG Mall required a reliable and efficient wastewater treatment solution due to the lack of access to municipal services. A system capable of treating and reusing wastewater to reduce reliance on potable water was needed. The effluent from shopping malls presents unique challenges, including high levels of fats, oils and greases reaching up to 800mg/L, which significantly increases the Chemical Oxygen Demand to over 3,000mg/L. Additionally, the Biological Oxygen Demand loading is elevated due to the low volume of greywater makeup. This necessitated a treatment system designed to handle high contamination levels and ensure effective retention times for proper digestion of contaminants.



Solution

SewTreat, leveraging its extensive experience in mall wastewater treatment, was appointed to design, supply, install, and commission a wastewater treatment plant at KG Mall. The plant was designed to handle a daily flow rate of 80m³, but due to the high COD value, the capacity was increased to the equivalent of a 140m³ per day plant. This effectively extended the retention time from 2.5 days to 4.7 days, ensuring optimal treatment efficiency.

To address the complexities of mall effluent, SewTreat implemented the Integrated Fixed Film Activated Sludge process, which combines Moving Bed Biofilm Reactor and Return Activated Sludge technologies. This advanced treatment process was selected due to its ability to:

- Minimize sludge and waste production.
- Adapt to seasonal or variable peak flows.
- Operate efficiently in remote locations where municipal wastewater disposal services are unavailable or costly.
- Treat high-contamination effluent effectively, ensuring compliance with environmental standards.

Benefits to the customer

- ✓ Environmental Compliance
- ✓ Sustainable Water Management
- ✓ Cost Saving
- ✓ Operational Efficiency