

## Reviving Natural Hydrology and Saving Millions with Advanced Coordinated Release Upstream of the Sand River

### The Challenge

The Sand River watershed in Aiken, South Carolina, experienced severe erosion due to increased stormwater runoff. This resulted in destabilized riverbanks, pollution from urban runoff, loss of habitats and recreational areas in Hitchcock Woods, and risks to public safety and infrastructure.

In 2017, the Sand River Stormwater Task Force proposed a \$22 million plan to capture 58 acre-feet of stormwater through 20 capital improvement projects. However, advancements in real-time control technology prompted a reassessment of the approach.

### The Solution

In 2020, the Task Force opted for continuous monitoring and adaptive control (CMAC) systems over the initial passive storage approach. Opti's CMAC system was deployed to manage stormwater through underground vaults, operating in series with coordinated release. Forecast-based real-time control uses weather forecasts to prepare infrastructure for incoming storms while real-time data from sensors within the system inform optimized stormwater management decisions.

“The entire [design and implementation] process was very efficient and stress free.”

—  
**Jason Hetrick, P.E., CFM**  
Assistant Director – Water Resources  
McCormick Taylor



President's Award



Municipal Association  
of South Carolina

Achievement Award



Top Project Winner 2022



**ECONOMICAL  
CAPEX**

2% of the project cost offset  
millions of dollars in CAPEX



**RESILIENT  
Performance**

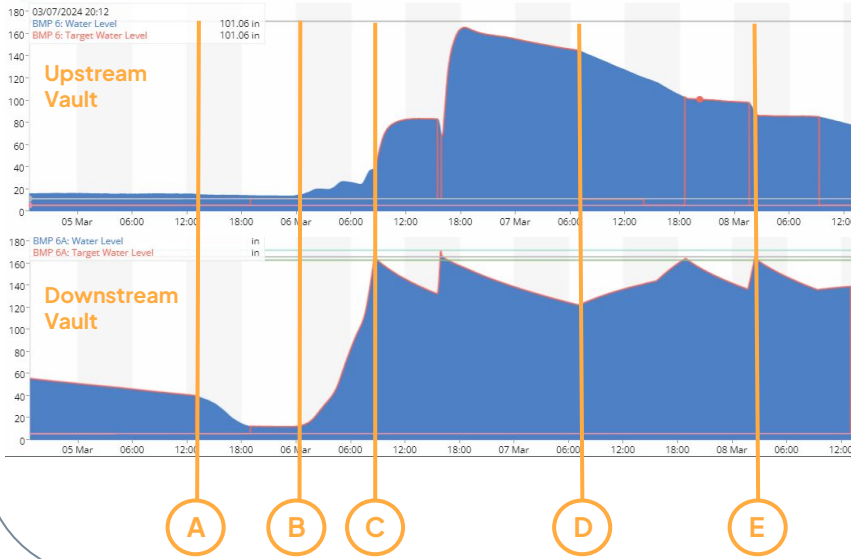
2.6x increase in stormwater  
capture and infiltration



**PEACE OF MIND  
Protect**

critical infrastructure for  
future generations

# How it Works: Coordinated Release in Aiken, SC



- A** CMAC monitors the weather forecast and identifies an incoming rain event. Pre-event drawdown is activated.
- B** The runoff from the storm begins flowing through the upstream vault and collects in the downstream vault.
- C** The downstream level threshold is met, triggering collection of runoff in the upstream vault while infiltration lowers level downstream.
- D** Coordinated release prioritizes capture in the downstream vault when capacity is available.
- E** Post event drawdown occurs upstream maximizing retention and infiltration downstream.

## Results

Commissioned in 2022, the CMAC system demonstrates significantly improved stormwater management:

- 87% of annual stormwater runoff capture\*
- 216 MG/yr stormwater captured\*\*
- 134 MG/yr stormwater infiltrated\*\*
- Erosive peak flow reduction of 60%

These results allow for the revitalization of the Hitchcock Woods recreational area and ensures long-term sustainability for the community.

\*Excluding events during manual control periods

\*\*Calculated from automatic reporting period June 2023–June 2024



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## About OptiRTC

**Opti** is the leading provider of digital adaptive stormwater control solutions. With over 300 deployments to date, Opti empowers customers and partners to address the impacts of climate change, aging infrastructure, urbanization, and water pollution, enabling them to secure the sustainability of our communities and natural resources. Opti's cloud-based platform optimizes stormwater asset performance through instant actionable insights to provide economic savings, resilient solutions, and peace of mind. With our commitment to innovation, we are driving a resilient and brighter future for all.



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