

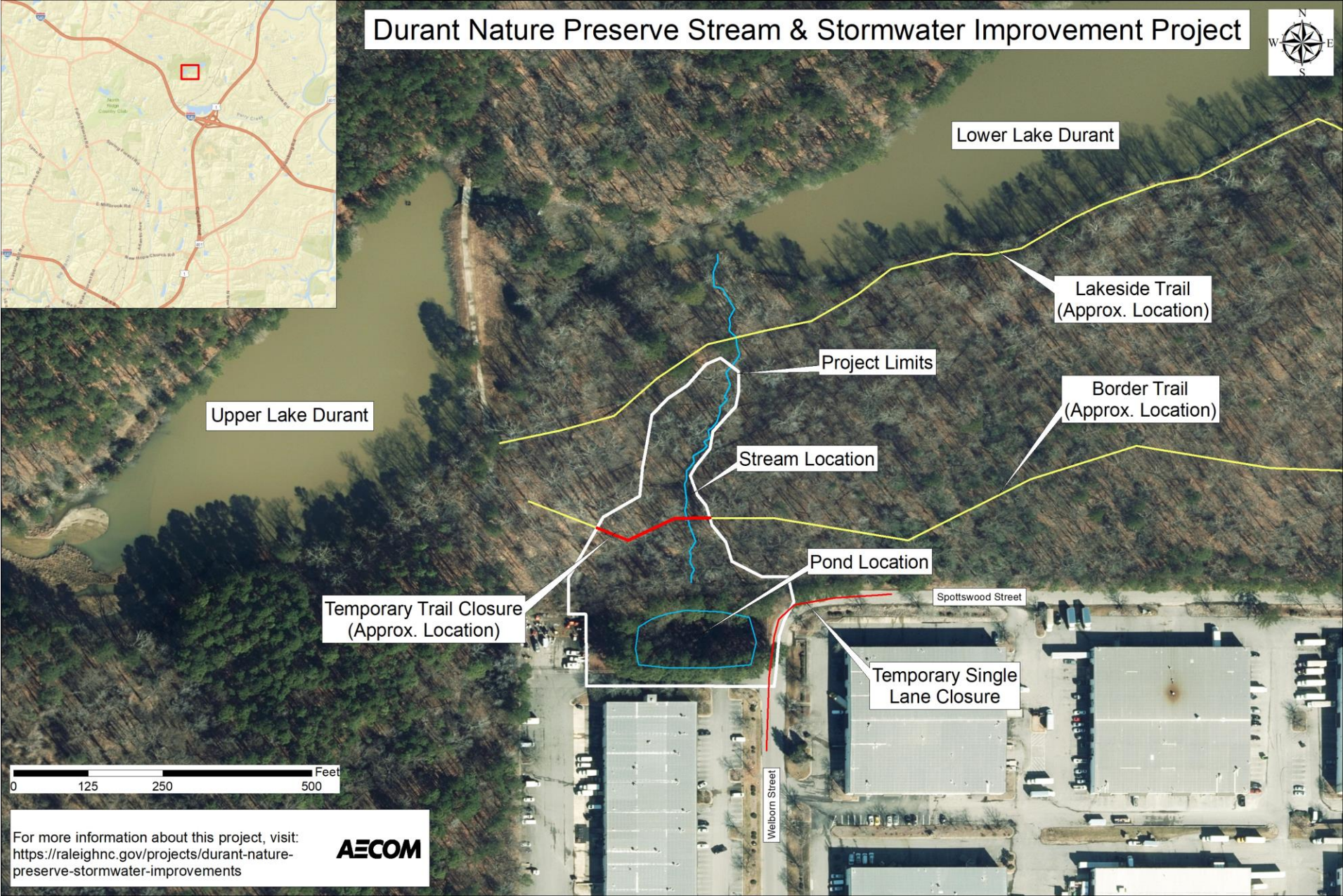
# Durant Nature Preserve Stream & Stormwater Improvement Project

City of Raleigh Stormwater

March 21, 2023



# Project Location

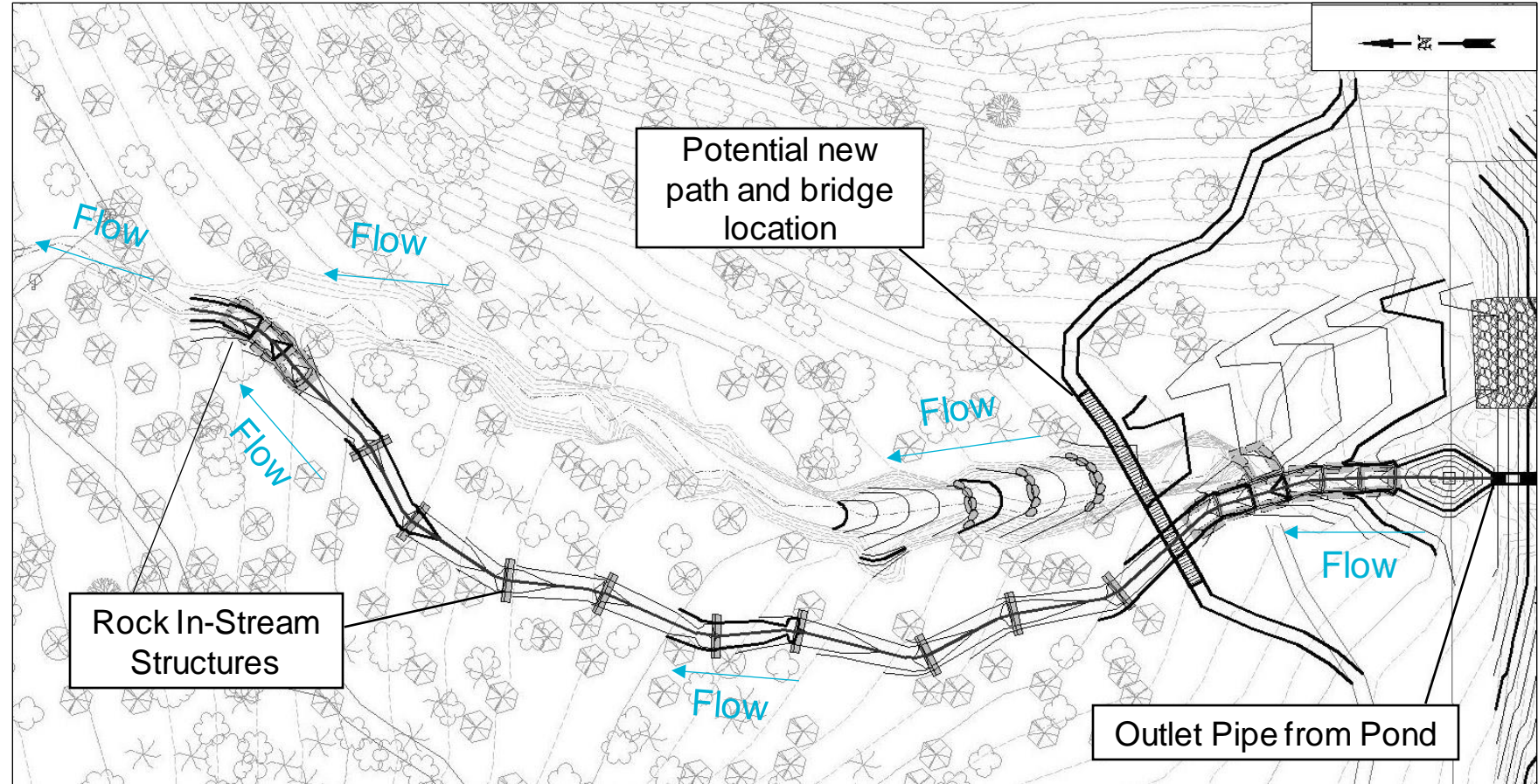




# Stream Restoration

## Stream Restoration Goals:

- Stop active erosion and reduce the amount of sediment reaching the downstream lake.
- Improve stream health and water quality.
- Provide a safe and educational experience for citizens using nearby trails.
- Improve park aesthetics.





# Existing Stream Conditions



Figure 1: Steep headcut in the stream channel



Figure 2: Pipe outlet from Spottswood Street detention pond



# Existing Stream Conditions



*Figure 3: Banks have become incised due to high energy water flow.*



*Figure 4: Fallen trees and woody debris due to bank erosion.*



# During Construction





# During Construction

Durant Nature Preserve Stream Restoration





**After Construction**

**Durant Nature Preserve Stream Restoration**





# Upon Tree Maturity

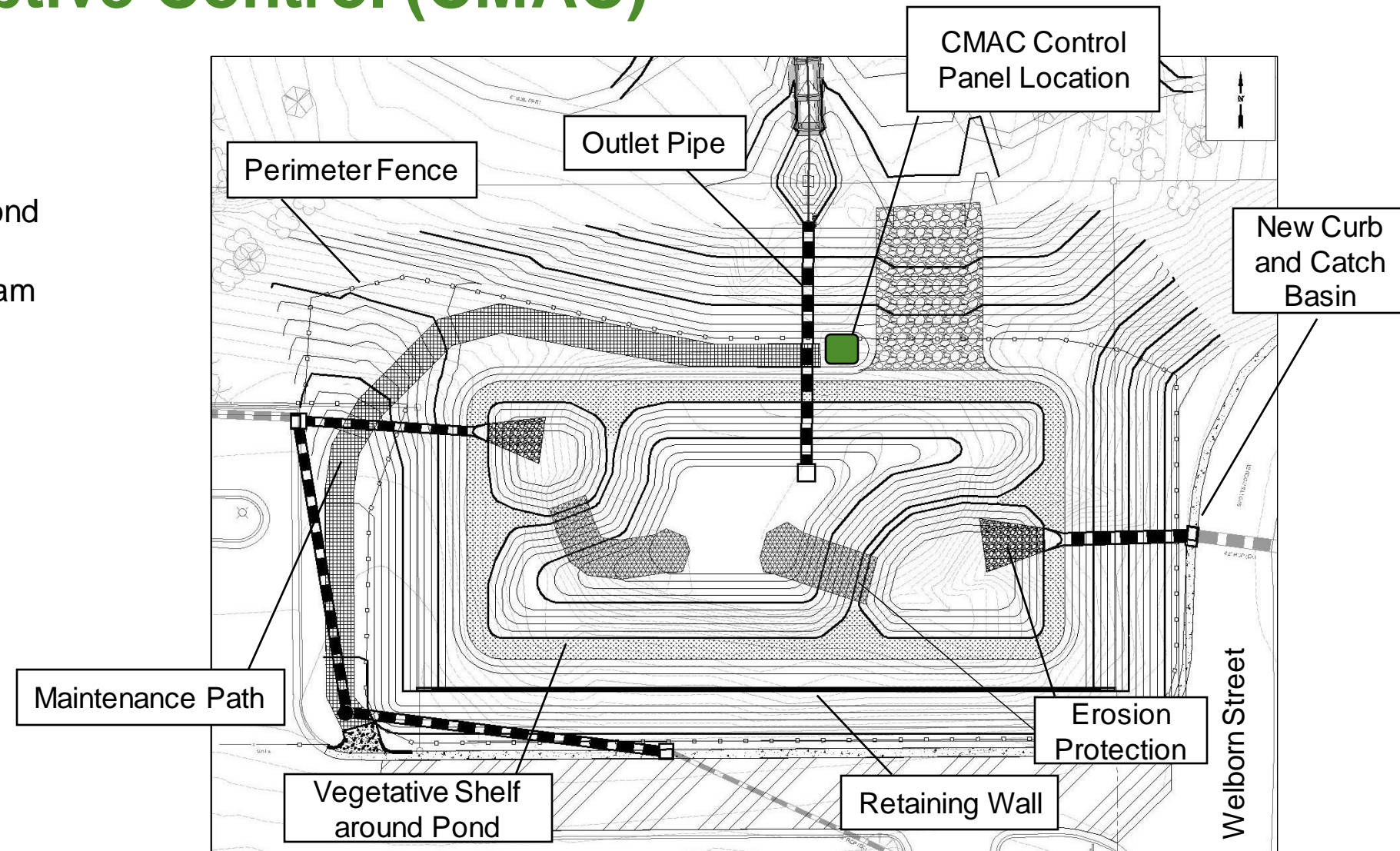




# SCM Retrofit: Wet Pond With Continuous Monitoring Adaptive Control (CMAC)

## SCM Retrofit Goals:

- Improve existing detention pond to better control stormwater runoff and improve downstream water quality.
- Reduce stream erosion and sediment reaching the downstream lake.
- Provide a safe and education experience for park users.





# Existing Pond Conditions



Figure 1: Steep and highly eroded slopes.



Figure 2: Impaired outlet structure function.



Figure 3: Erosion on interior and exterior slopes.



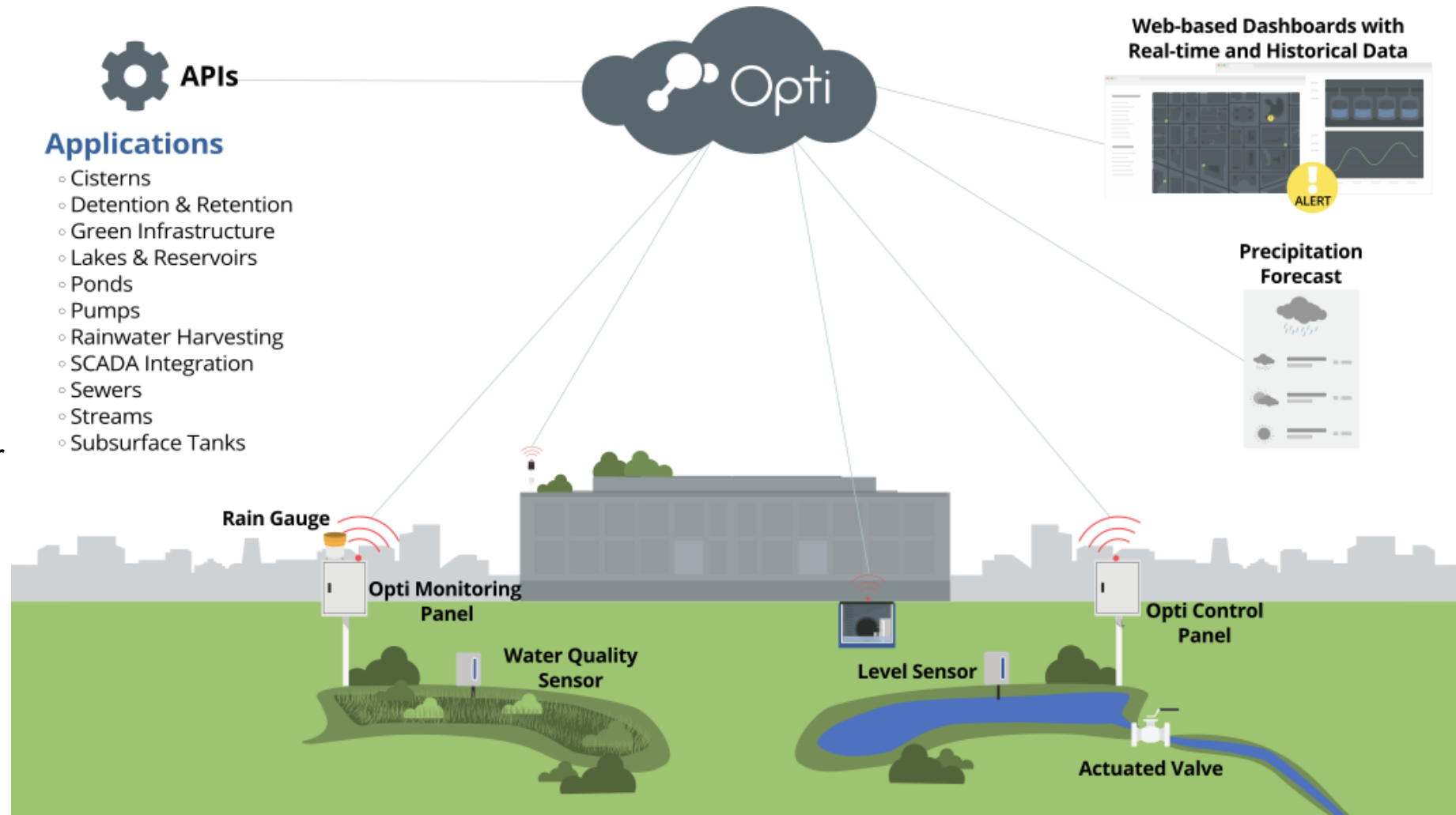
Figure 4: Sediment deposition and ponding.



# CMAC System by Opti®

CMAC systems can be applied to many types of stormwater facilities.

- Monitors the local weather forecast.
- Measures the pond water levels to determine if the pond can hold additional water.
- Automatically releases water to prepare for forecasted storms.





# During Construction

Upstream Stormwater Pond Retrofit





# After Construction





# Cost Estimates

Survey, Design, Permitting,  
Construction Management

\$436,461

Construction

\$1,222,992

**Total:\$1,659,453**

This project has been awarded \$200k from the NCDEQ Water Resources Development Grant (WRDG) Program for construction.



# Anticipated Schedule

Milestone	Estimated Completion
60% Design Documents	February 2023
90% Design Documents	April 2023
100% Design Documents	May 2023
Construction Permits, Bidding, and Admin.	December 2023
Construction Completed	August 2024



# Post-Construction Aerial View





# Thank you for Attending

*For more information on this project, go to:*

<https://raleighnc.gov/projects/durant-nature-preserve-stormwater-improvements>

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