

Cypress Wetlands and Drainage Improvements

Town of Port Royal Port Royal, South Carolina

Services Rendered

- Wetland Studies Delineation
- Stormwater Modeling
- Drainage System Design
- Permitting Agency Interaction and Permitting
- Wetland Enhancement Plan
- Overall Project Management

Project Summary

ATM provided engineering services to improve stormwater flow and conveyance, provide stormwater treatment, restore proper wetland hydrology, and correct flooding issues with five large interconnected wetland systems in the Town.

ATM modeled the 200-acre watershed and recommended stormwater piping improvements, but also designed the drainage systems to re-establish the correct hydrology to protect the health of the existing Cypress Wetland systems. Due to the stormwater retrofits, the interconnected wetlands are now able to provide stormwater storage, uptake, infiltration and treatment of fecal coliform bacteria and nutrients as stormwater travels to and through the wetlands in series. ATM's stormwater system design allows for the retention of stormwater flows for long periods of time in this system of natural wetlands. By providing long retention times, stormwater quantity is reduced as a result of transpiration by trees and understory plants, infiltration into existing sandy soils and evaporation. Fecal coliform bacteria levels are further reduced by holding large quantities of stormwater for extended periods of time to allow for die-off of bacteria. Stormwater flow must migrate through four independent natural wetland systems, each of which provides treatment, before being discharged to the Beaufort River.

The project required coordination with removal of invasive plant species in order for the wetland to naturally restore itself and to create a system of pathways around the largest wetland system for passive recreational use. In addition, an amphitheater and boardwalks were constructed for educational purposes of treating stormwater runoff and used as a nature walk of the beautiful estuary where hundreds of birds reside.

ATM also completed a Cypress Wetlands storage capacity study to determine if there is available storage in the Cypress Wetlands for stormwater runoff for future developments. According to the study the Cypress Wetlands has additional storage that will allow developers to divert stormwater runoff to the Cypress Wetlands instead of treating stormwater onsite. Based on the local and state stormwater permitting requirements, diverting the treatment of water quality and quantity to the Cypress Wetlands would allow a developer to maximize on developing the limited amount of land in the Town.

