

**Water and Environmental Programs
Engineering Success Stories**

State: Georgia

Borrower Name: City of Rentz

Engineering Firm: Carter and Sloop, Inc.

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Congressional Information: Congressional District 8-Saxby Chamblis

Counties: Laurens

Keywords: Wetlands, Nitrification

Wastewater Treatment for the City of Rentz

Description of Problem/Issue

The City of Rentz is a small, rural city of about 250 residents and small businesses and they were interested in having a public wastewater collection and treatment system. They needed a wastewater treatment system that was economically feasible for both capital and operating costs and satisfactory to the Georgia Environmental Protection Division of the Department of Natural Resources(EPD). Additionally, the City of Rentz is located in an area that does not have a suitable receiving stream in or near the city limits.

Solution:

When EPD receives a request for a new or expanded NPDES permit, the entity must evaluate a land application system which is considered a natural wastewater treatment system. During the initial stages of the system design, the engineers were directed by the city to evaluate several parcels of land for the slow-rate land application system(L:AS) and since the City of Rents is located in a quality farm belt, they believed that they could find an adequate site for the LAS. Several sites were evaluated and none that had the necessary engineering characteristics were readily available for the city to acquire for the LAS. Since the State of Georgia also considers a Constructed Wetland System(CWS) as a natural treatment system, the city requested that EPD approve a CWS system. Since there is a discharge associated with the CWS, a suitable discharge point had to be located. After considerable study, one was located about three miles from the plant site. EPD then issued a permit for a .12 MGD discharge with seasonal limits. From May through October the limits were 20 mg/l for BOD5, 5 mg/l for NH3-N and 30 mg/l for SS. For the months of November through April the limits are 30 mg/l for BOD5, 10 mg/l for NH3-N, and 30 mg/l for SS. The preliminary design concept was to use a two-celled, partial mix aerated lagoon for pretreatment

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followed by the CWS system consisting of a two-celled, two sub-celled wetland arrangement. The city's engineers had previous CWS design experience and were sure the performance of the constructed wetlands would meet the limits for BOD and SS. They also decided to further analyze the capability of the CWS to consistently meet the nitrogen limits and the final design included a separate aerated lagoon for nitrification. The system has been constructed but is not in operation yet. The wetlands were planted in September so it will be summer before consistent operating data will be available for the performance of the system.

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