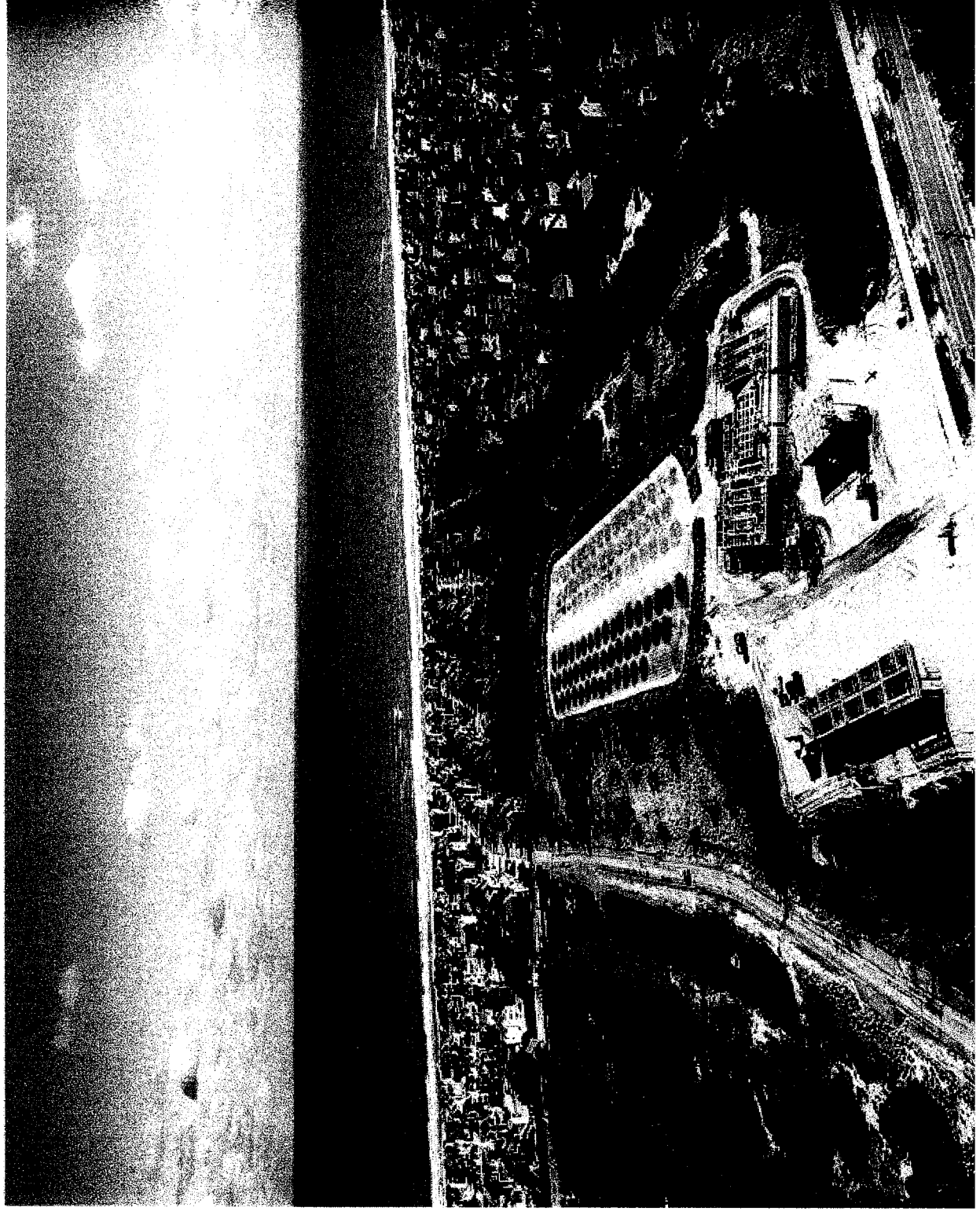
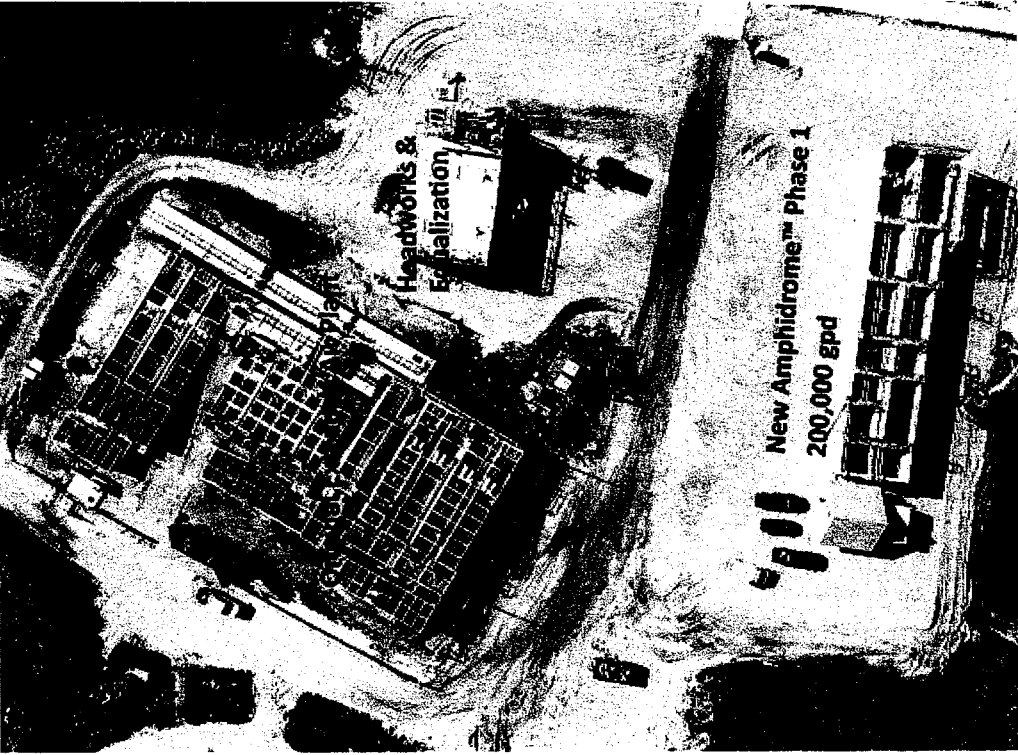


Photo Tour

Ocean Sands Wastewater Treatment Plant

Currituck County, NC

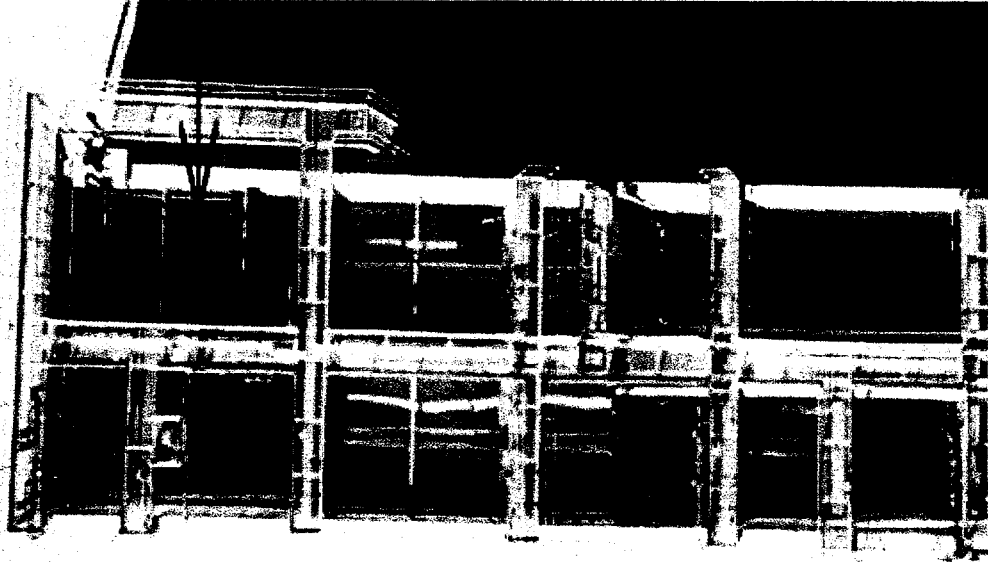






**Walker Process
Clarifier**

**Sludge
Holding 1**



Reactor Feed Tank



**Amphidrome™
Reactors**



**Clearwell with
Backwash Pumps**



Amphidrome™ Plus



Plus Clearwell





FYI

Amphidrome™ is a fixed film biological nutrient system developed by W. Keith Dobie Sr., President of F. R. Mahony & Associates, Inc. at the time. Rights to the patent were sold to Tetra Corporation, now De Nora. Don McCarty of Tetra assisted in the patenting process and is also named on the patent. Dobie and F. R. Mahony & Associates Inc. received a license to provide Amphidrome™ in the United States. Mr. Dobie sold FRMA to senior employees and is now President of Benjamin O. Paine Company.

B. O. Paine Company is a family company where Mr. Dobie worked as a teenager. Benjamin Paine was Mr. Dobie's great grandfather. The company evolved from horse shoes in the mid 1800's to steel rims for wagon wheels to wagon wheels to railroad car wheel carriages and finally to sharp edge tools. The tool factory was originally powered by a waterwheel and the company owned a reservoir to provide sufficient water to the waterwheel. In a round about way, managing the reservoir brought Mr. Dobie into the wastewater field, combining his interest in water with his academic interest in microbiology.

The Ocean Sands wastewater treatment plant serves the Ocean Sands section of Corolla, NC. Corolla is an unincorporated village in Currituck County, NC. The original plant at this site was constructed in 1978 and was designed to process 100,000 gpd. In the 1980's capacity was increased by adding extended aeration facilities using steel tanks.

The Amphidrome™ plant shown in these photos is the first of three replacement phases to replace the extended aeration plant. It is designed to treat 200,000 gpd with two identical phases to follow. The discharge permit for the Amphidrome plant is as follows:

BOD < 10 mg/l, TSS < 15 mg/l, Ammonium ion < 4 mg/l, Total Nitrogen < 7 mg/l, Total Phosphorous < 3 mg/l

Fecal Coliforms < 14 colonies/100ml

Key Participants

Currituck County

Eric Weatherly, P. E., County Engineer, Pat Irwin, Director of Utilities, William Nash, Wastewater Superintendent

Design

Anlauf Engineering Inc., Joseph Anlauf P. E., lead engineer

OBX Engineering, Michael Robinson, P. E., Civil Engineering

Kitty Hawk Engineering PLLC, Barrett Crook, P. E., Structural Engineering