

The Borough of Mansfield required upgrades to an aging wastewater treatment facility facing new regulatory requirements as well as challenging geographic constraints.

The existing plant was built in 1968 and could not meet the necessary regulatory requirements for water quality in the Chesapeake Bay Watershed as set forth by the Environmental Protection Agency (EPA). Plant upgrades were made more challenging due to site-specific land constraints, i.e., the plant's proximity to the Tioga River, a federal historical cemetery, and high-voltage electrical lines.

In order to meet discharge / effluent standards, the plant's operations were converted from a contact stabilization process to a state-of-the-art membrane bioreactor (MBR) process to accomplish a high level of biological nutrient removal. Existing tanks were converted to 2 pre-anoxic tanks, 2 aeration tanks, and 1 post-anoxic tank.

The conversion of the process required extensive renovation of the existing concrete tanks. This included repairs by removal of surface concrete to a depth behind the reinforcing bars, cleaning, preparation, and repair of reinforcing bars, and the reconstruction of concrete surfaces. The project also required epoxy injection work, and final concrete sealing and/or painting.

As a result of the design improvements, the capacity of the original wastewater treatment plant (1.0 MGD) was increased to 1.3 MGD. The wastewater treatment system now exceeds the more stringent federal water quality requirements for the Chesapeake Bay Watershed, including limits for total nitrogen (6.0 mg/L) and total phosphorus (0.8 mg/L).



Client: Borough of Mansfield

Location: Mansfield, PA

Completion Date: 2011

Engineer: MRB Group