

Big Marsh Park: Ford Calumet Environmental Center Decentralized Wastewater Treatment/Disposal System

Chicago, Illinois



Valerio, Dewalt, Train

Chicago's first decentralized wastewater treatment and disposal system demonstrates environmental stewardship while serving and improving access to nature for historically underserved communities of the South Side.

SERVICES

Assess
Plan
Engineer & Design

Located in the South Side of Chicago on what was once an active industrial site along the Calumet River, Big Marsh Park is a 280-acre haven for off-road biking, hiking, bird watching, and enjoying restored marsh habitat. It is also the home of the Ford Calumet Environmental Center, which was designed to serve South Side communities and celebrate the region's environmental, cultural, and recreational assets. In addition to its programming and amenities, the Center supports environmental education and local ecology in the way that it handles its wastewater.

Given the Center's environmental education mission and its location within a restored marsh ecosystem far from the sanitary sewer system, a decentralized, onsite wastewater treatment system that incorporated the natural water-cleansing power of wetlands was constructed to serve the facility while providing a visible and educational element for visitors. Working closely with the Parks Department and design team led by architects Valerio Dewalt Train Associates, and with extreme sensitivity to degraded site conditions, Biohabitats engineered a nature-based system to safely capture, treat, and discharge all wastewater generated by the Center on site. Effluent is first settled in a septic tank to remove solids and capture trash. A trickling filter pretreats the water and helps remove nitrogen. An equalization tank buffers flows from park events before water is pumped into a subsurface flow constructed wetlands for polishing. Highly visible, planted with native wetland species, and acting as biological filters, the constructed wetlands employ microbes living in the plant roots and gravel treatment media to naturally break down nutrients. After polishing, the treated water flows into an elevated sand mound, where it is safely dispersed back into the groundwater.

The system is designed to treat up to 4,000 gallons of wastewater per day, with regulatory approvals from both Cook County and the Illinois Department of Public Health. This decentralized wastewater treatment and disposal system that features a constructed wetland is a rarity in the City of Chicago.