



**TECHNOLOGY:**

# Engineered Wetlands

Leading the way with sustainable solutions

**APPLICATIONS**

Single homes to small towns

Industrial wastewater

Nitrification and denitrification

Agricultural Waste

Landfill Leachate

Airport Deicing

Food Processing

Pulp and Paper

Groundwater remediation



**TECHNOLOGY**

Engineered wetlands greatly advance the treatment capacity of wetland treatment systems. Unlike earlier generations of passive constructed wetlands, engineered wetlands boost treatment performance by aeration or pumping. Previously, applications requiring nitrification of wastewater could not use treatment wetlands. Now, engineered wetlands provide reliable and cost effective nitrification performance. The large size of passive wetland treatment system often prevents their use. Engineered wetlands systems can cut the treatment area in half, opening up many more sites to wetland treatment. Treatment time is faster in engineered wetlands than passive systems, which also reduces the treatment area.

Jacques Whitford NAWE is at the forefront of engineered wetland systems. Its engineers have authored eleven United States and Canadian patents on these advanced wetland designs and have designed more than 250 wetland treatment systems. Also, by coupling wetland systems with other innovative natural systems, JW NAWE has increased the reach of wetland technology.

Detailed knowledge of wetland microbiology, plants, hydrology, and ecology, coupled with experience in operations, construction observation, soils, aeration, and hydraulics provides us with a technical foundation in wetland design that is unmatched. With this strong foundation, JW NAWE confidently applies well accepted engineering principles to provide unique wetland-based solutions.

We have extensive experience and expertise in the design of many types of wetland systems:

- Forced Bed Aeration™ horizontal and vertical flow wetlands
- Tidal flow (flood and drain) wetlands
- Surface flow wetlands
- Recirculating wetland designs
- Cold weather wetlands
- Nitrifying wetlands
- Nitrogen removal wetlands
- Passive subsurface flow wetlands
- Reed beds for sludge composting



Founded in 1972 • More than 45 offices across North America & Internationally • Employee owned • More than 1,600 staff • 100,000+ projects in North America & over 65 countries • Current projects obtained from repeat clients: 80%



**Jacques Whitford Companies**  
 Jacques Whitford  
 Jacques Whitford Co., Inc.  
 Jacques Whitford AXYS  
 Jacques Whitford NAWE  
 Jacques Whitford EcoCheck

**Partners & Affiliates**  
 Minaskuat • EM&I Jacques • FMA • CE Jones • Furgro Jacques GeoSurveys Inc. • IR Wilson • Kavik AXYS • Tlego'hti Jacques Whitford • Nu Nenne Axys Inc. • Westworth Associates • Nunami Jacques Whitford • Toxcon • FMA Heritage Resource Consultants • Neegan Naynowan Jacques Whitford Lp

**Speciality Divisions**  
 Jacques Whitford Training Institute • Geomatics Solutions

[www.jacqueswhitford.com](http://www.jacqueswhitford.com)

