



LOCATION

Buffalo, New York

PROJECT TYPE

Airport Deicing

COMPLETION DATE

2009

DESIGN CAPACITY

1,200,000 gpd

4,540 m³/d

10,000 lb/d BOD₅

4,530 kg/d BOD₅

TREATMENT

Aerated Gravel Beds

AWARDS

Environmental Achievement – 2010, ACI-NY

Public Works Project of the Year – 2010, APWA - NY

Diamond Award – 2009, ACEC

PROJECT:

Buffalo Niagara International Airport

NEED

To reduce sewerage costs and meet storm water discharge limits, the Buffalo Niagara International Airport required an on-site treatment option for spent deicing runoff. To be an effective option, the system had to achieve the following goals:

- Fit within the airfield perimeter
- Treatment of cold and high-strength deicing liquid
- Low profile; below ground
- Not a bird strike hazard
- Low sludge and no odor production
- Capable of handling seasonal variations and peak storm events
- Integrate into the existing storm water management system

SOLUTION

Aerated Gravel Beds are an essential component to the redesign of the airport’s storm water management system. The beds provide treatment of “first flush” storm water, which is heavily laden with glycols during the deicing season. To treat glycol-based contaminants, the beds include NWC’s patented technology, Forced Bed Aeration™ that supplies oxygen uniformly over the system and permits operator control of treatment. The distribution of wetland influent is also optimized so as to uniformly distribute organic loads. Also important to the project was a treatability study that established cold weather reaction rates for the treatment of spent deicing runoff.

BENEFIT

The use of aerated gravel beds to meet the airport’s needs results in a simple and robust solution that is low maintenance. As designed, the project is at grade with no above ground structures that could present an airside hazard. Most importantly, the subsurface nature of the beds prevents the need for an open water body that would be a bird strike hazard for the airport. With airport deicing regulated by the EPA, aerated gravel beds are fulfilling a role of providing simple, effective treatment. Advanced engineering practices, like the use of forced bed aeration, allow natural solutions for industrial-sized problems.

