

# Fixing "Raccoon-gate": Treating E-Coli at East Bay Park



**CHALLENGE:** Removing high concentrations of E-Coli contamination from public beach area, installing new tanks and systems beneath water table, and coordinating delivery from various suppliers.

**SOLUTION:** Install system to capture, treat, and reduce E-Coli concentration, utilize dewatering pumps and trench boxing at water table, and coordinate project timeline to optimize delivery schedules.

**OWNER:** City of Traverse City

**CONTRACT AMOUNT:** \$646,758

**LOCATION:** East Bay Park, Traverse City, MI

**DATE COMPLETED:** June 2013

**PARTNERS:** Fabco, Inc., Helix Filter Design, Watershed Center Grand Traverse Bay, Hydro International

**SELF-PERFORMED:** 95%

When a family of raccoons decided to nestle their homes within the storm drains of East Bay Park, they probably didn't anticipate the negative impacts they would have on a nearby family beach. But when the rain came and washed raccoon feces out of the drains and into the bay, E-Coli contamination rapidly spread throughout the waters of the small park. City engineers developed a solution and the Watershed Center Grand Traverse Bay, a non-profit organization dedicated to protecting local waters, soon got involved, applying for and receiving a generous grant to help cover the costs. Enter Team Elmer's to install the fix for the problem.

Elmer's got to work in late April, implementing a trio of three-step filtration systems that will greatly cut back on bacterial contamination and keep problems like "Raccoon-gate" from recurring in the future. The steps of the new systems are outlined below:

**1) Downstream Defender®:** Once installation was completed on an intricate weir structure, built to redirect water flow and integrate the new drainage systems with existing storm drains, Team Elmer's implemented this hydrodynamic vortex separator, a first-pass filtration feature. Though the project's heavy lifting was handled in later steps, the Downstream Defender manufactured by Hydro International will prove useful in removing cigarette butts and other paper debris from runoff water flow. Floatables, oils and greases are captured in the outer section of the unit.

**2) Settling Tank:** This 36,000-pound behemoth boasts dual-chamber separation that captures dirt, sand, and other debris that the Downstream Defender missed the first time around.

**3) Helix Filtration System:** This 54,000-pound stainless-steel screen filter piping structure features a precise fan system and treated antibacterial surfaces, designed to propel, attract, and filter E-Coli contaminants as water passes through the apparatus. An outlet pipe

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then sends the treated water to one of two catch basins.

Once the water has been separated and treated, it is discharged to a retention area, built from catch basins and extensive elliptical pipe systems, which then carry it to an outlet channel. To slow the velocity of outlet water and reduce erosion risk, Team Elmer's lined the channel with a riprap, "rock armor" wall. Now, the state-of-the-art water treatment system is ready for future raccoons and the water-loving public.

"We were very happy with Team Elmer's on our beach restoration project at East Bay Park in Traverse City," said Sarah U'Ren, Program Director for the Watershed Center Grand Traverse Bay. "The project was finished well within the given schedule with no major glitches or unforeseen problems. This job was The Watershed Center's second major beach restoration project and the first involving an installation of a large concrete underground filter. Installation went flawlessly and Elmer's met all challenges presented to them."



## East Bay Park By The Numbers

- 36,000 pound** Settling Tank
- 54,000 pound** Helix Filtration System
- 218 feet** of concrete sidewalk
- 100%** capture rate of floatable trash via Downstream Defender
- 8-foot** and **10-foot** diameter catch basins
- 207 feet** of reinforced concrete sewer pipe (includes **12**, **15**, and **18-inch** pipes)
- 47 feet** of **24-inch** reinforced concrete sewer pipe
- 279 feet** of **36-inch** reinforced concrete sewer pipe
- 300 feet** of **34-inch** by **53-inch** reinforced concrete elliptical sewer pipe
- 81 feet** of **38-inch** by **60-inch** reinforced concrete elliptical sewer pipe
- 300 tons** of hot mix asphalt
- 2,600 square yards** of aggregate shaping

