

Photos by Dean Wiebenga, Peterson & Matz

Monster Solutions

Muffin Monster® Grinds Down Pump Station Repair Costs

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When Otter Creek Water Reclamation District was faced with expensive reoccurring clean-up costs at their largest wastewater pump station, engineers solved the problem with the Muffin Monster – a true giant in wastewater solids reduction technology.

The Village of South Elgin, established in 1897, is a picturesque community that attracts visitors and new residents with its old world charm. Located about 40 miles northwest of Chicago, Illinois, the Village’s 22,000 residents rely on three wastewater pump stations. The largest of these is located at the Thornwood Lift Station where flow to the station is about 490 gpm (110 m³/h) and three 40-hp (30 kW) pumps need to move sewage at about 600 gpm (136 m³/h) @ 36’ (11m) TDH. Here, build-up of rags, trash wrappings and other debris were clogging the system and forcing it offline. This necessitated regular cleanings totaling over \$19,000 per year.

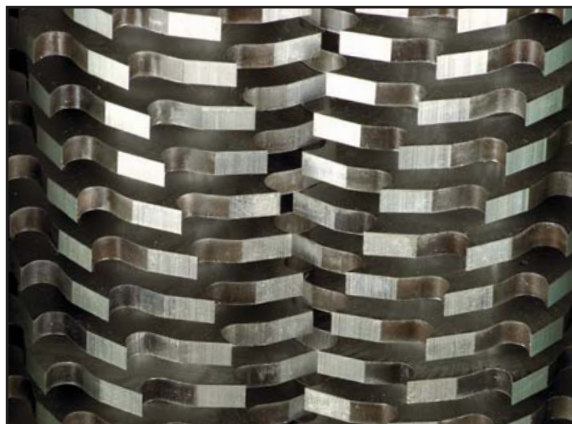
The water and wastewater systems within the southwestern portion of South Elgin, including the Thornwood Lift Station, are

PROBLEM: Costly clean-up of rags, wipes, flushables and debris inside a sewage pump station

SOLUTION: Muffin Monster sewage grinder

owned and operated by the Otter Creek Water Reclamation District (Otter Creek). RHMG Engineers serves as the District Engineer for Otter Creek. Otter Creek contracts with the Village of South Elgin for the operation and maintenance of its system. According to Dave Jaeschke, RHMG’s Senior Environmental Engineer, they were running into a new and growing problem.

“Pumping stations and sewage treatment plants are filling with more and more polyester-reinforced rags – baby wipes, mop heads, and cleaning wipes used in restaurants and homes,” he explains. “Because of the polyester fibers in them, they don’t break up or decompose in wastewater. Eventually this debris builds up and clogs pump impellers to the point it shuts down. As a result, we were forced to hire a Vactor® truck four times a year to the tune of \$4,900 a pop to clean out the rags from the wet-well.”



Muffin Monster’s hardened steel cutters slice through rags

In addition to the rags building up in the wet-well, they accumulated over the cables leading to the submersible pumps. Over time, the weight would disconnect the cables, inadvertently shutting off and short-circuiting the pumps. Pumps had to be either reset or completely rebuilt. Both scenarios required expensive equipment to pull up the pumps.

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The Muffin Monster is wall mounted in front of the influent pipeline, so all debris is ground to small bits before entering the wet well. Also shown here is JWCE's custom stainless steel guide rails which allow the grinder to easily slide into place.

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When you add the pump maintenance costs to the \$19,000 per year wet-well cleaning costs, the numbers quickly sky-rocket.

To combat these soaring expenses, RHMG proposed installing a JWC Environmental Muffin Monster to grind up the debris. The Monster would not only eliminate the quarterly cleaning and protect the three pumps, it would also improve energy efficiency; i.e., without impairment from rags, the pumps wouldn’t need to go on and off as often, reducing wear and tear.

The Muffin Monster model 30005-0024, which handles flow rates up to 1000 GPM (230 m³/h), was selected for the Otter Creek wastewater pump station. The Muffin Monster is a low-speed, high torque grinder with sharp steel cutter teeth that quickly shreds rags, rock, wood, clothing, plastics and other debris into confetti size particles that won’t clog pump impellers. This allows the wastewater to flow smoothly through pumps and pipelines to the wastewater treatment area.

To install the Monster in the inlet system, JWCE’s custom stainless steel guide rails were attached to the sides of the wet-well. Then the grinder was slid down into place about 20 feet (6m) below so that it fit perfectly in front of the influent pipe.

Since the Muffin Monster’s installation a year ago, there has been no need to bring in a Vactor truck for cleaning nor have there been any pump maintenance issues.

“The Monster still looks brand new and there are no signs of wear,” says Dan Mann, Water & Sewer Superintendent for the Village of South Elgin. “The savings are really unbelievable. In addition to the savings on expensive wet-well cleaning costs, a huge savings was realized by no longer having to pull up pumps and perform maintenance.”

For details on the Muffin Monster please visit www.jwce.com.

To learn more about the Village of South Elgin visit www.southelgin.com.



Village of South Elgin staff inspect the Muffin Monster and underground wet well.



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