

Monster Keeps Wipes at Bay in Billerica, MA



Billerica, Massachusetts embodies an ideal American suburb – picturesque streets, quaint houses, inviting storefronts and a central city square perfect for socializing with fellow neighbors and visitors. Located just 50 minutes north of Boston, Billerica is also a prime spot for young families who want the convenience of a close-by city with the atmosphere of a restful community. As the population has grown over the last few decades – hitting just over 40,000 at the last census – so has the amount of debris flowing through the area’s wastewater treatment system, especially the amount of rags and “flushable” wipes. This extra influent was causing undue stress, equipment damage, and unscheduled maintenance at one of the area’s largest pump stations, and the city looked to a waste reduction solution that would permanently eliminate these problems.

Pumps plagued by wipes

Out of the 22 lift stations in the city, the Brown Street Pump Station is one of the largest, with a max flow rate of 5.6 mgd. The facility is comprised of two pumps (duty/standby), with an option for a third pump. Brown Street is near the end of the city’s pump station line, and no significant equipment upgrades have been made since the facility was originally built in the 1970s. Both the location and the age of the station have made the clogging problems associated with wipes especially troublesome.

“Dealing with wipes has been nothing but a nightmare,” said Mike McCaughey, collections supervisor for Billerica. “Brown Street has a 24-inch pipeline leading into the station, and

PROBLEM: Disposable Wipes clogging pumps during storms and maintenance

SOLUTION: CDD4016 Channel Monster with Wipes Ready Upgrade

CONSULTANT: Aqua Solutions

when there’s not enough flow rags just build up inside the pipe. Then, during periods of heavy rain, a slug of storm water rushes through the pipeline and all the rags hit the pumps at once.” This influx of wipes and rags would also cause issues during routine cleanings of the wet well. Once the maintenance crew broke up the matted grease and wipes at the top of the chamber, this debris would rush through the pumps at the same time.

During peak storm events, McCaughey and his crew were clearing wipes out of the pumps at Brown Street as often as three times per day. This necessitated a total system shutdown so the pumps could be taken off line, disassembled and cleared of the blockages, and then restarted. Even during normal conditions workers were needing to clear pump clogs two-three times a week

McCaughey looked for a solution that would protect the pumps at Brown Street, and the remaining pump stations downstream, without inhibiting flow or requiring a major system redesign.



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Simple solution restores efficiency

McCaughey stepped up his battle against wipes in 2011 with the installation of a CDD4016 Channel Monster® grinder from JWC Environmental. He worked with Aqua Solutions, the local JWC representative, to find an answer for the Brown Street wipes problem. The Channel Monster was a good mix of resolving the immediate issues while also taking into account the ease of installation into the existing system and not restricting the design flows. The city was pleased with the grinder's results in the pump stations, and noted it also had a positive impact on the downstream Roger's Street Pumps Station.

In 2014 the wipes loading had increased in the city to the point where the Brown Street station needed more support. Jim Deluca, president of Aqua Solutions and the manager of the Brown Street upgrade, recommended upgrading the Channel Monster® with the new Wipes Ready technologies from JWC.

The Wipes Ready technologies changed out the traditional coil bar drums with rotating screening drums with ½-inch (12mm) perforated openings. The perforated drums do not allow wipes to bypass the grinder and feeds them into a dual-shafted grinder for shredding. Additionally the cutters were upgraded to the new 17 tooth serrated cutters which shred the wipes in 2 directions rendering the wipes harmless to pumps.

"The wipes ready upgrades to the grinder made a huge difference," said McCaughey. "We've already gone two months without ever pulling the pumps and they're running much more effectively." McCaughey found the system to be a durable, economical and versatile solution to protect the Brown Street pumps and pipelines.

Since the installation of the Channel Monster with the Wipes Ready technology in 2014, the need for daily pump maintenance has been eliminated. Maintenance crews no longer have to take time away from planned projects in order to service the pumps at Brown Street and manually remove the clogs and ragballs from the equipment

The Future of Flushables

According to a study conducted by the Association of the Nonwoven Fabrics Industry (INDA), consumer wipes usage is expected to grow considerably through 2017, at about 16 percent year-over-year. While public outreach and awareness campaigns continue to take hold — for example, the recent What2Flush initiative — this effort alone isn't enough to permanently change consumer behavior. The most productive solution for pump station owners is to assume that the wipes problem at their facility isn't going away anytime soon. By incorporating a pump protection system directly within a pump station, like a dual-shafted grinder, facilities managers can rely on a cost-effective and reliable solution to permanently eliminating the clogging issues and downtime associated with rags, fabrics and wipes.

Since its founding in 1973, JWC Environmental has become a world leader in solids reduction and removal for the wastewater industry with its Muffin Monster grinders and Monster Separation Systems for screening, compaction and washing. JWC also solves challenging size reduction and processing problems in commercial and industrial applications through its Monster Industrial division. JWC Environmental is headquartered in Costa Mesa, California, and has a global network of representatives, distributors and regional service centers to provide customer support. For more information, visit JWC Environmental at www.jwce.com.

