



Pump Companies Team Up to Deliver Successful Sewer Bypass Solution

Work was about to begin on a sewer bypass in Niagara Falls, NY, along a major gorge downstream from the falls. Sewer and storm lines had filled with silt and debris and were overflowing into the gorge below. Approximately 1/2 mile of sewer line needed to be bypassed so it could be emptied.

The original bypass design, as proposed by others, would have run the bypass pipe through wooded land above the gorge, then would have suspended a section of pipe from a bridge over the gorge. Thompson Pump Midwest saw difficulties in this design and proposed an alternative route. Why not use a pedestrian walkway on the bridge—it was going to be closed during the sewer tunnel construction anyway. This approach could save thousands of dollars, not to mention weeks of time. Thompson got the nod.

The Specs

The bypass began at an interceptor near the treatment plant just off of the gorge, continued over a traffic and pedestrian bridge spanning railroad tracks and ended underneath the bridge, where bypassed sewage would re-enter the sewer line. Total length of the bypass was over 6,100 feet, with a potential flow of 10.9 million gallons per day (MGD).

Thompson's design called for the following combination of high pressure, trash and submersible pumps at four stations along the bypass.

■ Pump Location #1 (Drop Shaft 14)

Two 90 HP Flygt submersible pumps to accommodate specified flows of 3.4 MGD (one a primary unit/the other for 100% back-up) were inserted through the contractor-supplied bulkhead upstream. Powered by individual 400 Kw generators, each pump discharged through 12" HDPE to the surface and bent 90 degrees into an alternate manhole. The flows then continued through a 30" line under the parkway to Pump Location #2.

■ Pump Location #2 (Staging Area 3)

Two Thompson 12JSC High Pressure Solids-Handling 12" pumps (one a primary unit/the other for 100% back-up) were used to accommodate specified flows of 5.8 MGD. Each had 12" HDPE Suction and discharge lines flanged directly to the pump. Both 12" discharge lines were flanged into a common manifold (2 @ 12" x 1 @ 18"), allowing flows to continue through a single 18" HDPE line running across the bridge.

■ Pump Location #3 (Drop Shaft 10)

Two 30 HP Flygt submersible pumps (one a primary unit/the other for 100% back-up) were used to accommodate specified flows of 0.9 MGD. Powered by 150 Kw generators, each discharged through 12" HDPE to the surface and then tied into the main 18" header pipe.

■ Pump Location #4 (Under the Bridge)

Two Thompson 6" Silent Knight® sound attenuated trash pumps (one a primary unit/the other for 100% back-up) were used to minimize sound reverberating off the structure.

Capable of handling established flows of 0.8 MGD, both pumps discharged through 6" Thompson galvanized steel pipe flowing into a common line and continued through a connection established at the main 18" header line. At this point, the main 18" line ran south-bound 3,320 ft. on the east side of the parkway to the established discharge point.

Once the system was connected, tested and inspected, pumping began full-time—weeks sooner than it would have using the original proposal. Of additional value, though, was the fact that Thompson Pump Midwest provided all of the project's portable engine-driven pumps, submersible pumps, piping and accessories as a single supplier. Pumping was expected to continue for 4-6 months.

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