



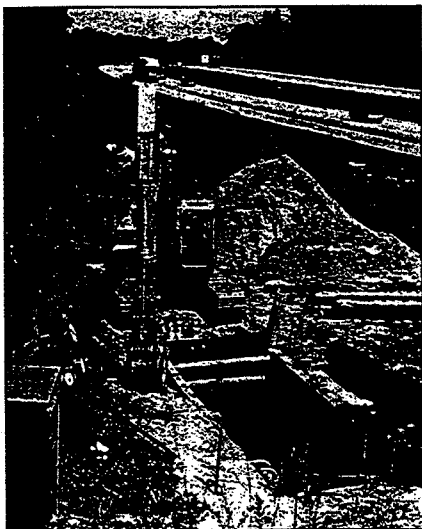
Rothenberger Company's Caterpillar 320B works a yard bucket in placing 16-inch PVC force main along the I-94 right-of-way two miles east of Mattawan.

\$9.5-MILLION MATTAWAN SEWER NEAR COMPLETION

By Dirk C. Bloemendaal
Staff Writer

The Village of Mattawan is completing a \$9.5-million municipal sanitary sewer system that is expected to go on line by August 1999.

Mattawan, a Home Rule Village of four square miles, had a 1995 population of around 2,500.



A bore and jack crew worked this John Deere 892 D-LC backhoe and a McLaughlin McL-30 boring machine to place pipe under roadbed in several spots along the I-94 route.

Located in the northeast quarter of Antwerp Township in Van Buren County, the village is located eight miles west of Kalamazoo and six miles east of the Village of Paw Paw, along Interstate 94.

Mattawan's long-standing problem with sewage (as with many communities) is that it has been without a centralized municipal sanitary sewer system. The village has limited storm sewers, constructed primarily for storm drainage and street runoff, not septic sewage. With approximately 800 potential uses (mostly single-family residential), 48 commercial and industrial users and the community school system, much of the village's core area had limited space for replacement tile fields or septic systems.

The degree of treatment provided by existing individual septic tanks is unknown. Indications showed that many of the septic tanks were failing. Samples taken by the Michigan Department of Natural Resources from the nearby

Mattawan Creek contained high levels of fecal coliform. This was likely due to failing septic systems leaching into the creek.

Since replacement of the failing septic tanks was not a feasible option for many homeowners with high ground water and saturated soil conditions, the need for a municipal sanitary sewer system in Mattawan was high.

The wastewater load for the village in 1995 was 250,000 gpd. With the village's projected population expected to approach 4,000 by 2015, an approximate load of 400,000 gpd was predicted.

Several options were considered to alleviate this wastewater loading. These options included pumping wastewater to the City of Kalamazoo (the selected option) and pumping wastewater to the Village of Paw Paw for treatment. Other options included constructing a lagoon system with spray irrigation fields and/or constructing a lagoon system with discharge to constructed wetlands that

outfall into natural wetlands. Another option was constructing a mechanical plant.

In March 1995, the Village of Mattawan contracted Gove Associates of Kalamazoo to analyze their system and determine the most cost-effective method of designing a sewer system for collecting, transporting and treating the sewage generated.

Of the various options, the selected method was that of pumping the sewage to the City of Kalamazoo for treatment. This choice would also allow the village access to a tertiary treatment plant at a state-of-the-art facility and would allow the village further growth well into the next century.

For bidding purposes, the project was split into three divisions for the transmission, collection and lift stations. Contractors were selected in May 1998 and construction started in July 1998.

The system consists of a conventional gravity collection system along with four lift stations and one main pump station (in the northwest section of the village). The system is designed to pump through an eight mile, 16-inch force main, installed along the north side of the I-94 right-of-way. Funding for the project includes a \$7-million loan and a \$2.4-million grant from the United States Department of Agriculture.

The sewer is designed to serve the developed area inside the village limits with service to homes accomplished by connecting each users plumbing directly to the sewer system and bypassing septic tanks completely.

Septic tanks will be abandoned when the system becomes operational. No water, other than wastewater, will be allowed to enter the collection system. The village's existing storm sewers will be maintained in order to serve the street system as a separate system.

The sanitary sewer collection and transmission system also crosses Mattawan Creek in six locations and the Amtrak rail line twice. These crossings are



Rothenberger Company uses a Caterpillar 936E loader handling a 3-yard bucket to backfill pipe trench along I-94 right-of-way.

being carried out by the bore and jack method.

The water reclamation plant of the City of Kalamazoo has sufficient capacity to handle the output from the Village of Mattawan. The Kalamazoo plant has an average flow capacity of 54 mgd and is currently operating at roughly 50-percent capacity. The plant is comprised of tertiary treatment with discharge into the Kalamazoo River.

Rothenberger Construction Company of Concord, Michigan, holds the two pipe contracts. Division A (\$3,073,078) is for pipe installation south of I-94 and inside the village proper. Division B

(\$3,648,520) is for work north of I-94 in the village and the eight-mile force main system from Mattawan east to Kalamazoo.

The Division C contract (\$1,423,260) is being constructed by Balkema Excavating Inc. of Kalamazoo and is for four lift stations and one pump station on the project.

The Mattawan project received excellent bids with a total of nine bidders on Division A, eight on Division B and six on Division C.

"Bids for the project came in within 4 percent of my estimates, even though there were some compensating reversals in division prices due to timetables. We were



Rothenberger Company's Caterpillar 936F front end loader works a 3-yard bucket to backfill pipe trench along I-94, east of Mattawan.

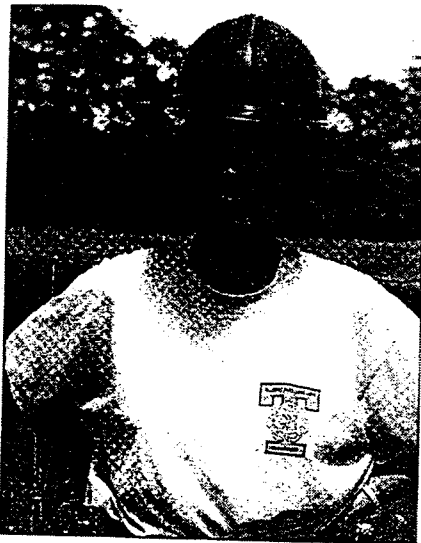
able to cut out one lift station and some lines and obtain an appropriately sized project," Frank Renaldi, project manager and chief designer of the project, said.

Rothenberger is using four crews to place pipe, along with a boring crew and cleanup crew. The contractor's equipment spread includes several backhoes comprised of a Caterpillar 936E, a Caterpillar 345, two Caterpillar 330s and a John Deere 892. Most of the machines utilize 3-yard buckets. Wheel loaders consist of three Model 936F Caterpillars with 3-yard buckets and a 4-yard, 966 Caterpillar loader.

John Deere 750 bulldozers are used for backfilling. A John Deere Model 750 grader maintains the access roads and is used for restoration.

Division A calls for installing 50,745 linear feet of 8- to 24-inch sanitary line as well as 11,492 linear feet of 4- to 10-inch force main. Sanitary leads run 7,260 linear feet and there is 695 linear feet of 24-inch bore and jack on the Division A contract.

An additional 998 linear feet of 12- and 18-inch storm sewer is also included. Division A work will require 30,763 tons of 3B and 36A bituminous with striping running 36,040 linear feet of 4-inch yellow thermoplastic line and 2,855 linear feet of 4-inch white line. Restoration will require putting down 16,333 square yards of 3-inch topsoil, seed, mulch and fertilizer.



Meghan Oldfield, one of the field engineers, on the project for Gove Associates Inc.

The Division B contract is for pipe work placement north of I-94 as well as the pipeline from Mat-tawan to the Kalamazoo sewer system. This division is comprised of 30,637 linear feet of sanitary pipe, varying in size from 8 to 30 inches in diameter. In addition, there are two 24-inch bore and jacks totaling 325 linear feet.

The Division B contract will have the contractor install 46,989 linear feet of high pressure PVC force main along the I-94 right-of-way. This contract will require 15,453 tons of 3B and 36A bituminous mix as well as 366,273 square yards of topsoil, seed, mulch, fertilizer and mulch blanket. Striping is another 22,440 linear feet of 4-inch yellow thermoplastic line and 6,672 linear feet of 4-inch thermoplastic white line.

Rothenberger has been averaging 700 feet of pipe per day on the gravity sewer, with one of the better days resulting in 1,200 feet of pipe placed. Cuts range from 7 to 20 feet with 13 feet about average. Rothenberger is handling its own bore and jack work.

Division C work is for the main pump station and four lift stations. It was mostly completed by Balkema this past fall and early winter.

Several subcontractors have also been playing a role in the project, including Globe Construction Company of Kalamazoo (bituminous) on Division A and B. The

subcontractors for Division C are Harper Industrial of Grand Rapids; NR Mitchell Company of Plainwell (controls), and Balkema Electric of Kalamazoo (electrical).

The pipe for the project is being supplied by Michigan Pipe & Valve, and the manholes are from Kerkstra in Grand Rapids.

Gove Associates Inc. of Kalamazoo is the architectural and engineering firm for the project. Their key personnel involved in the work include Karl Freed, the principal project manager, along with Frank Renaldi P.E., the project engineer. The lead field engineer is David Schultz. Ron Rousch, Bruce Tuck and Charles McCormick are the principal field personnel (inspectors) on the job. Megan Oldfield, staff engineer with Gove Associates, has also had a role in supervising the project.

Dan Rothenberger is the owner and president of the Rothenberger Company. Dave Rothenberger and Tom Shinaver are the superintendents on the project. Don Swartzlander, Mike Tomlinson and Greg Mejeur represent Balkema Construction.

David Behen, village manager and Todd Hackenberg, director of the Department of Public Works, represent the Village of Mattawan. Rick Ashbaugh, village council member, was the key player in negotiating the overall project with local entities. ♦



One of Rothenberger's mainline crews. From left to right: Tom Shinaver, superintendent, with James Rothenberger, Billy Winans and Gary Martin.