



CASE STUDY

PROJECT NAME

Surgoinsville, Tennessee
Municipal STEP System

SYSTEM SPECIFICATIONS

STEP System serving 247 residences,
2 schools, 9 businesses.

INFILTRATOR PRODUCTS USED

212 Infiltrator IM-1060 tanks

INSTALLATION DATE

2015/2016

ENGINEERS

Tysinger, Hampton & Partners, Inc.
Johnson City, Tenn.
CTI Engineers, Inc.
Chattanooga, Tenn.

INSTALLER

Mike Smith Pump Service
Bean Station, Tenn.



INFILTRATOR
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Infiltrator IM-1060 Tanks Provide Needed Flexibility and Performance for Rural Municipal STEP System

Surgoinsville was one of the few municipalities in Tennessee without a public sewer system limiting economic development opportunities. Existing homes were served by subsurface sewage disposal systems that were failing and compromised by other factors including structures built over these systems. The current package plant in operation since 1959 that served the Surgoinsville Elementary and Middle Schools was at the end of its useful life. The town decided to pursue a sewer system that could handle current needs with capacity for the future.

CHALLENGES

Complex challenges faced Surgoinsville including securing and maintaining funding sources, sewer rate analysis, guidance for start-up of a new public utility, sewer line routing within a limited public right-of-way, hydraulics, customer identification, extensive permitting, and diligent coordination with local utility providers and government officials.

A feasibility study conducted to shed light on the design alternatives available and to help narrow the scope of the project showed that a low-pressure septic tank effluent pump (STEP) collection system was the best alternative to meet the town's needs. Low-pressure systems are very beneficial for areas of low-density populations because they have minimal Inflow/Infiltration as compared with gravity. STEP systems also typically have less odor issues than grinder pump systems since they do not convey solids, and the replacement costs are less for STEP than grinder pump systems.

Funding was secured including a \$1.3 million Rural Development Community Programs Grant, \$500,000 Community Development Block Grant, \$500,000 from the Appalachian Regional Commission, \$485,000 from the U.S. Environmental Protection Agency, a \$1.5 million USDA Rural Development loan, and \$200,000 in local funds.

SYSTEM DETAILS

The \$4.5 million project serves 247 residences, two schools and nine businesses. Installed on lots with existing homes, outbuildings, driveways, landscaping, the project was designed with the additional capacity to serve approximately 700 properties. Wastewater is sent to the neighboring city of Church Hill's wastewater treatment plant. The system includes nine miles of low-pressure sanitary sewer collection lines, two pump stations, and individual STEP services at more than 200 residences that include Infiltrator IM-1060 tanks. The Infiltrator IM-1060 tanks were selected to provide ease of handling on these difficult Appalachian sites with steep slopes and limited backyard access to existing homes.

Engineers from Tysinger, Hampton & Partners guided the community through the design and construction process and subcontracted with CTI Engineers, Inc. of Chattanooga, Tennessee for assistance with the feasibility study. The installer, Mike Smith Pump Service, had a staging yard to store the IM-tanks and deliver them as needed to each site with no rail truck or heavy equipment required. This allowed his staff to assemble and deliver tanks when the weather prohibited on-site work and excavation, keeping his staff working fulltime instead of being moved to another job or sent home to wait on the weather to clear. This was a plus for overall project scheduling and delivery.

RESULTS

The project recently received a 2016 Rebuild Tennessee Award from the Tennessee Development District Association. The award is for the best infrastructure project in the First Tennessee Development District of Northeast Tennessee.