CASE STUDY

IM-1060 Septic Tanks Used in Rural Municipal STEP System

Surgoinsville, TN

SYSTEM SPECIFICATIONS
STEP System Serving Residences and Businesses of Rural Community

INSTALLATION DATE
2015/2016

PRODUCTS
IM-1060 Septic Tanks

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

INSTALLER
Mike Smith Pump Service, Bean Station, TN

DESCRIPTION

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.

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.

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.

The project 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.

Infiltrator Water Technologies
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