

# Sentinel's Stunning Sitelines Require Creative Sewering Solutions

Environment One provides the preferred solution.

"Without you, and that pump, we wouldn't be standing here today" is how developer Michael Dinn summed up his feelings to Bob Jordan of Fluid & Thermal Systems. Dinn made a sweeping gesture of the new rooftops nestled into the tidy, hillside community of Sentinel Estates, an upscale infill project of just 15 acres on a steep hillside, with breathtaking views of Cincinnati beyond.

Sentinel Estates is a cachet development of only ten homes on one- to five-acre lots. The 3,500 to 7,300 square foot luxury homes are each unique, but share a common feature: stunning sitelines. Each features a walkout into woods, and a 10–12 foot drop between lots. "Stadium seating" is how Michael Dinn refers to it.

## A Problematic Site

Dinn has a long history of building beautiful homes in difficult, infill locations, but this one had its own unique challenges. For starters, the property was owned by a family with deep roots in the Queen City, who felt an obligation to preserve as much character of the land as possible. So the parcel came with strict covenants, which prohibited some of the easier development approaches. Secondly, the most desirable siting was down a steep slope, necessitating massive amounts of cut and fill – 24,000 yards. And finally, sewer mains were located either uphill or substantially downhill of the site, which meant expensive and

intrusive sewerage – if done with traditional methodology.

The difficulty of this parcel had kept it on the market for years. The traditional sewerage solution would have utilized conventional gravity sewerage downhill some 2,000 feet, through easements not yet attained, to a main below. The uncertainty of obtaining those easements, combined with the cost, was daunting at best. Beyond that, the site was all bedrock, requiring blasting and digging.

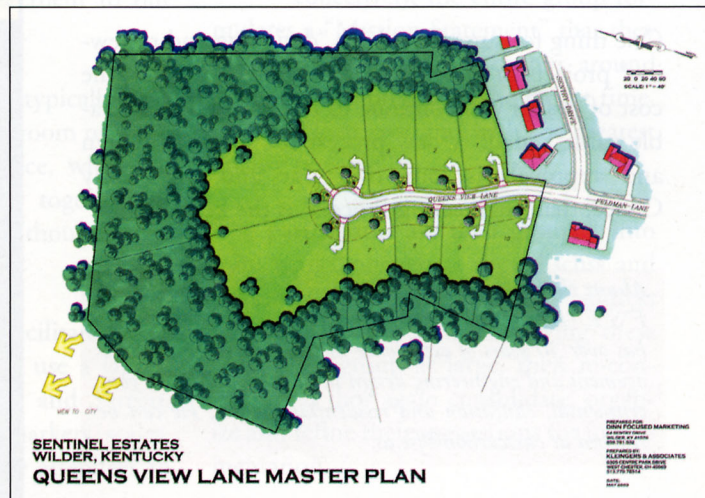
The other traditional alternative was to utilize a large-diameter gravity main to a collection point below, where a lift station would pump the waste back uphill to the main situated above grade. But lift stations are both unsightly and tremendously expensive, and this solution came with an estimated \$200,000 price tag. It's no wonder developers had shied away from this otherwise attractive parcel. The infrastructure alone would price the lots beyond market value.

## Third Solution Became First Choice

Ashley Development, the exclusive builder for Sentinel Estates, chose to install a low

pressure sewer system, powered by Environment One sewage grinder pumps. Dinn had heard of Environment One low pressure sewer systems, and felt confident knowing that many of the big, local builders were already using them. "It was a vicarious endorsement," says Dinn. From an aesthetic perspective, LPSS was far more desirable. But from an economic perspective, the case was even more compelling. A gravity system with lift station would cost nearly \$200,000, as opposed to LPSS at merely \$13,000 – a fraction the cost.

The low-pressure sewer system is elegantly simple, environmentally sensitive, and economically sensible. It consists of small diameter, flexible pipes, 2- to 4 inches in diameter installed in shallow trenches just below the frost line, following the natural contours of the site.







At each home site, an E/One sewage grinder pump is installed into the ground, with an access lid for service. These compact pumps – smaller than a washing machine – grind the waste into a fine slurry and pump it under pressure into pipes that lead uphill to the existing sewer main. Because of the pressure generated by the pumps, they are able to lift sewage nearly 150 feet vertically, or horizontally over a mile and a half. So, in this case, the waste from Sentinel Estates is sent uphill where it connects to a nearby main

### Heart of the System

Denise Jeffery of Fluid & Thermal Systems, recommended the E/One 2012 grinder pump for Sentinel Estates. “With its larger capacity, it’s a perfect complement to these larger, luxury homes,” she said.

The tank is made from tough, corrosion-resistant HDPE, and features a capacity of 150 gallons. The GP 2012 can accommodate flows of 1500 gallons per day. The grinder pump is automatically activated and, because it runs infrequently and for very short periods, its annual electric energy consumption is typically that of a 40 watt light bulb.

E/One grinder pumps do not require preventive maintenance and boast an average mean time of eight to 10 years between service calls. If service is required, the unique, one-piece core eliminates the need for in-field troubleshooting and servicing — the pump core can be quickly pulled out and replaced, meaning minimal maintenance costs and inconvenience for the homeowner.

### Other Benefits

The E/One LPS system is a completely closed system, immune to groundwater infiltration and runoff, which is a problem in this region for traditional gravity systems. And the system is nearly invisible, with no unsightly manhole covers. The only evidence at all are the pump lids at ground level, and these are easily camouflaged by simple landscaping such as flowers or plants. And, because the pipes are significantly smaller than traditional 24-inch mains, the installation is kinder and gentler to the terrain.

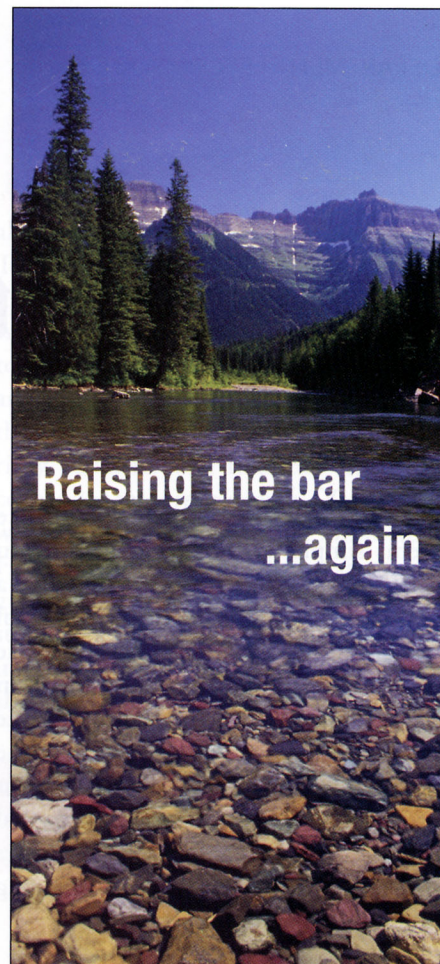
Financially, the LPS system proved to be much easier on the development budget, and the actual pumps were installed at closing and packaged into the price of the home.

### Homeowner Amenity

The luxury homes in Sentinel Estates are built with engineered materials, and loaded with amenities, such as integrated home security, audio/visual, and telephone packages. At the \$700,000 to \$800,000 price point, buyers expect a certain level of features and amenities. “These are sophisticated buyers, who are looking for quality,” says Dinn. “They look at the E/One grinder pump as an amenity – that allows them this spectacular view. I like to call it the ‘view pump’.”

Dinn believes in the Sentinel Estates project and the LPS system to the point where he was the first buyer. He now resides in what was the model home for the development, looking out at the Ohio River and Cincinnati beyond. **LDT**

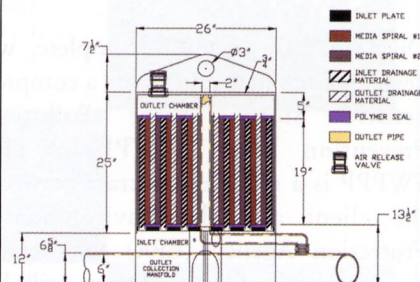
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