

City of Danville, KY Spears Creek Sanitary Sewer Pump Station Force Main Project Estimated Cost \$7M

The City of Danville is currently undertaking a \$2.5M rehabilitation of its Spears Creek Sanitary Sewer Pump Station located north of KY 2168 and east of KY 33 (Shakertown Road). The Spears Creek PS receives all flow from the Spears Creek drainage area, which includes Centre College and the west side of Danville including the U.S. Hwy 127 Bypass corridor. The pump station also receives flow from Northpoint Training Center and the Mercer County Sanitation District via the Mocks Creek pump station and force main. The Spears Creek lagoon was constructed in 2015 to reduce peak flows to the pump station from the 24-inch gravity trunk sewer by means of flow equalization to reduce high flow impacts that this facility already experiences.

The pump station utilizes a 14-inch force main that extends south all the way to the Danville Wastewater Treatment Plant (WWTP). This force main is a recurring Sanitary Sewer Overflow (SSO) location as well due to leaks/breaks in the vicinity of air release valves (ARVs). The ARVs were repaired in 2014 but additional leaks have occurred. The City has repaired the force main at locations in the vicinity of ARVs and is inspecting and maintaining the line on an ongoing basis. The Spears Creek 14-inch force main is a limiting factor in pumping capacity. At 4,400 gpm, the velocity in the force main is approximately 9.2 feet/second (fps). It is good design practice to limit force main velocity to 8.0 fps. Optimum velocities for reducing maintenance costs and preventing accumulation of solids range between 3.5 and 5.0 fps. That being said, upsizing the existing 20,000 LF force main or providing a parallel force main will allow the City of Danville to better align with proper sanitation practices.

