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By Alex Perry
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Project to remedy falling ground levels

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An ongoing regional project starting in North Suffolk aims to remedy decades of sinking ground levels.

Project SWIFT — Sustainable Water Initiative for Tomorrow — is a \$1 billion effort by the Hampton Roads Sanitation District to inject treated wastewater into the Potomac aquifer at treatment plants across Hampton Roads. The goals are to reverse the compaction of the aquifer and reduce harmful discharge into the Chesapeake Bay.

A \$25-million research center is set to break ground at the end of March at the Nansemond Treatment Plant. The 27,000-square-foot demonstration facility will treat one million gallons of water per day upon completion in January 2018.

HRSO general manager Ted Henifin said this research center will collect data throughout the year for procedural improvements.

“It will identify ways to reduce cost and improve operations and modify treatment processes, referring to the research center demonstration project,” he said.

The center will be developed into a full-scale facility for another \$150 million. The remaining budget will be spent to build six other facilities at water treatment plants across Norfolk, Williamsburg and York County by 2030.

Scientists compare subsidence changes — sinking ground levels — when calculating relative sea level rises in the region. A 2003 scientific journal paper showed rates of aquifer compaction, or subsidence, were 1.5 millimeters annually in Franklin and 3.7 millimeters annually in Suffolk.

“Some of the highest rates of sea level rise along the East Coast are in Hampton Roads,” U.S. Geological Survey groundwater specialist David Nelms said. “Those rates you see are twice what you see for the global average.”

A 2,000 foot hole at the Nansemond water treatment plant holds an extensometer that measures ground movement. Five wells at the extensometer site will be equipped with instrumentation to measure pressure in the Potomac aquifer. A well at the facility will inject 1 million gallons of water into the aquifer daily.

Nelms said the goal is to remedy “cones of depression” throughout the coastal plains.

“It’s healing the impact of pumpage since the 1930s,” he said. “Most of that water that’s been pumped out never gets back to that aquifer. This will be like a healing process.”

Nansemond plant water is treated for harmful agents such as sediment, phosphorus and nitrogen. Injecting this water eases the amount discharged into the Chesapeake Bay.

“A big part of this plan is to minimize what they would be discharging to the bay,” Nelms said.

He said that the Potomac aquifer has been compacting at a rate of 3 to 4 millimeters per year, and that these slight changes over a long time add up.

“It’ll be interesting to see what kind of rates we get as the ground comes back up,” he said.

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130 S. Saratoga Street,
Suffolk, VA 23436
757-539-3437