



RIVANNA WATER & SEWER AUTHORITY

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MEMORANDUM

**TO: THE ALBEMARLE COUNTY SERVICE AUTHORITY
BOARD OF DIRECTORS**

**FROM: THOMAS L. FREDERICK, EXECUTIVE DIRECTOR, RIVANNA
WATER & SEWER AUTHORITY**

**SUBJECT: DISCUSSION ON WASTEWATER PROJECTS AND COMMUNITY WATER
SUPPLY**

DATE: JULY 15, 2010

At the request of Mr. O'Connell, I am please to provide you a summary of the topics I plan to cover during my visit to the Albemarle County Service Authority Board of Directors scheduled for July 15, 2010. You may also have other topics or questions you wish to discuss and this will be an open forum. I appreciate the opportunity to meet with you.

Update on Wastewater Projects

The RWSA is working on many issues with respect to building a greener and better wastewater system for this community. Many of these issues are part of the "cleaning up" of the fact that wastewater infrastructure had not been adequately addressed or maintained prior to 2005.

The **Moore's Creek Wastewater Treatment Plant** is undergoing its first major upgrade since 1981. Ground was broken by then Governor Tim Kaine in May 2009 and construction is presently ahead of schedule. While the plant will maintain an average daily flow capacity of 15 million gallons per day, it is significantly expanding the capability of handling peak wet weather flows. The upgrade also includes enhanced biological nutrient removal, odor control, and a new generator to provide renewable energy from digester gas produced in anaerobic digestion of biosolids. The \$41 million construction project is also financed with below market rate state revolving fund loans.

At the July 27 RWSA Board meeting, Greeley and Hansen will publicly present the results of a **Comprehensive Sanitary Sewer Interceptor Study** that was initiated in 2005. This "master plan" provides a comprehensive "blue print" for future RWSA improvements to its interceptors and pumping stations, shaped by the goals developed by the ACSA and City of Charlottesville staff for inflow and infiltration (I/I) reductions to the three (ACSA, RWSA, and City) interconnected wastewater systems. The study included 2006 flow metering of existing conditions, the development of a calibrated computer model of the wastewater system that could simulate both existing conditions and multiple scenarios of future conditions, development of growth forecast data from County and City, I/I goals, and a recommended capital program.

RWSA is already working on the implementation of several projects that represent outcomes of the "master plan". The Meadow Creek Interceptor replacement is under construction with completion scheduled in 2011. The replacement of lower sections of the Schenks Branch Interceptor has been coordinated with the City and VDOT's plan for roadway improvements. An upgrade of the Moore's Creek Pump Station is under final design. The development of multiple alternatives for expanding the



capacity of pumping between the Rivanna Interceptor and the Moores Creek WWTP is under preliminary design. Investigations are underway or complete on several sections of Interceptors to identify I/I reduction, including Schenks Branch Interceptor, Albemarle-Berkley Interceptor, Lower Rivanna Interceptor, and the Crozet Interceptor. Further, RWSA is implementing the further expansion of wet weather flow capability within the Moores Creek WWTP to match the recently developed I/I goals.

Each month the RWSA Board receives a Status Report on Ongoing Projects on its Consent Agenda, and this report is posted to RWSA's website. The report represents a way for the ACSA Board and public to track on-going project activities by RWSA.

Community Water Supply

As the ACSA Board is aware, several additional studies have been requested by the RWSA Board, based on input from the ACSA Board and the elected officials, since the 2006 plan for the Community Water Supply was approved. Most of these studies have now been completed. Schnabel Engineering has performed preliminary design for a new **Ragged Mountain Dam**, recommending an earthen dam be built at a cost estimated between \$28.5 million and \$36.5 million (including construction, final design, construction management, environmental mitigation, and an allowance for the I-64 embankment). The conceptual design for a new **South Fork to Ragged Mountain pipeline** has been reviewed. The **Dredging Feasibility Study** has been completed with the exception of a final report, estimating a total cost of between \$34.0 to \$40.2 million to dredge 1.1 million cubic yards (13% of the volume added by a new Ragged Mountain Dam), with a potential for revenue from beneficial reuse between \$4.5 million and \$11.6 million. A **Water Conservation Study** has been completed by the ACSA and City staff. RWSA is presently in negotiations with VDOT and the federal Highway Administration regarding the **I-64 embankment** and hopes to complete this work within the next month.

In April 2010 the RWSA Board asked for an additional study to **review the 2003-04 Water Demand Analysis**, expected to be completed in August. The City of Charlottesville is also managing a study to evaluate raising the existing Ragged Mountain Reservoir by 13 feet.

In 2007 RWSA recommended that the first phase of the approved water plan be to construct the new Ragged Mountain Dam. Several reasons were identified including three major reasons. First, providing all of the new storage would be adequate insurance to allow other water system needs, to include the replacement of the existing Sugar Hollow pipeline with a new pipe from the South Fork Reservoir, to be built at a later time. Second, a new dam built in one phase will always be less overall cost as well as more secure than a dam built in phases. Third, site logistics and costs associated with dam construction have to be repeated every time a new phase is constructed. Given that the City is now considering an alternative that would provide a smaller expanded reservoir at Ragged Mountain, RWSA has asked Schnabel Engineering to provide estimates for three scenarios of phasing. The three scenarios Schnabel will report on include: (1) building a new earthen dam with spillway to increase the reservoir pool only 13 feet with a foundation designed only for the "13 feet"; (2) building a new earthen dam with a foundation that could support increasing the reservoir pool by 45 feet, but only build the first phase of the dam to "13 feet"; and (3) building the new earthen dam and spillway as required to eventually raise the reservoir pool by 45 feet, but design the spillway tower to control the initial water level at "13 feet". The report on these scenarios is due this month.

As the ACSA Board is aware, the RWSA Board authorized Schnabel to perform additional geotechnical work, originally proposed to run parallel to final design, at its June Board meeting, to continue to make progress with respect to the Ragged Mountain Dam project while waiting for decisions from other studies. In addition, Mr. O'Connell recently asked that we obtain further information from Schnabel to include how much it might cost to advance a County Special Use Permit application for the dam, to advance modifications to environmental permitting required by the change

from a concrete dam to an earthen dam, and to identify how much it might cost to advance final design work between August 1 and September 30. Schnabel is responding to this request and we expect to have this information by mid-July.

I look forward to your questions and meeting with you on July 15.

cc: Rivanna Water & Sewer Authority Board of Directors
Ms. Jennifer Whitaker
Dr. Bob Wichser
Mr. Lonnie Wood