SE ENVIRONMENTAL GEOLOGY
DENNIS J. PRICE, P.G.
P.O. BOX 45
WHITE SPRINGS, FL 32096
cell 362-8189, den1@windstream.net

November 14, 2016

North Florida Regional Water Supply Partnership

RE: PROPOSAL FOR THE RECHARGE OF THE UPPER FLORIAN AQUIFER IN THE NORTH FLORIDA FLATWOODS ENVIRONMENT, HAMILTON, COLUMBIA, UNION, BAKER AND ALACHUA COUNTIES.

My proposal is directed towards those areas in the SRWMD and the SJRWMD that are underlain by the Hawthorn formation resulting in extensive areas containing a surficial aquifer and the intermediate aquifers that exist in the Hawthorn. Recharge to the Floridan is retarded by the presence of the clay layers in the Hawthorn. Very large wetland systems are common in these areas.

Water balance studies were produced twice that I am aware of in the SRWMD, one by Dave Fisk of the SRWMD and one for the Environmental Impact Statement regarding Phosphate Mining in Columbia County in the Osceola National Forest, in the 1970's. Both studies resulted in an estimated recharge to the Florida of about 4" per year ±. All water balance studies were done after the majority of the wetland drainage systems were constructed and therefor do not take into account the natural recharge that occurred prior to ditching.

Starting in the late 1800's and continuing through the 1950's-1970's when planted pine plantations started, much of our large wetlands systems have been drained purposefully in order to harvest the cypress out of the wetlands and to dry up marginal wetlands around these wetlands to create more acres of pine plantations.

I have been working in the North Florida Flatwoods as a geologist for the last 42 years, starting as an exploration geologist, mapping the ore body in Columbia and Hamilton counties, for what is now PCS phosphate in Hamilton County. I have walked hundreds of miles through the Flatwoods, including my time with the FDEP and the SRWMD. I have spent the last 20 years working for myself as a licensed well driller and wetlands/geologist consultant. Most recently I spent 4 years permitting a wetlands mitigation bank, Bayfield Mitigation Bank, a few miles south of Sandlin Bay in Columbia County. I rarely go into wetlands that have not been ditched.

Through all this time I have discovered that all the road side ditches, pine plantation planting beds, wetland ditching and interior ditching has drained the wetlands of most of the water from significant rainfall events, especially during the winter months when most recharge to the aquifer happens.

Plugging ditches on the Bayfield Mitigation Bank site flooded the adjacent pine plantations and ruined the interior roads so it is difficult to travel on them. Plugging ditches to rehydrate swamps to increase recharge would never be allowed by landowners because it makes the land to wet. Plugging ditches may be a good tool on public lands. Pre and post hydrographs from piezometers installed in wetlands and the surficial aquifer on the Bayfield Mitigation Bank site clearly demonstrate the significant increase in water retention and length of time water remains in the wetlands in between rain events.

Consequently this proposal for recharging the Floridan was created. The assumption is that the drainage referenced above does occur. The area proposed for this project is located over the Floridan where significant lowering of groundwater levels have occurred over a very large area. The most efficient way to recharge large areas is by constructing drainage wells. In the attached map, the major wetland systems have a drainage-well constructed in a location that is accessible and, is located, where the wetland system begins to narrow down.

Top of casing elevations can be set at an elevation where they capture water during high flow conditions that occur after large rainfall events and during the winter months, both times of higher recharge to the Floridan.

The wells are intended to capture a portion of the flow from the system. The entire plan could be constructed for less money than the plan calling for pumping water from the Suwannee River over to Falling Creek in Columbia County and the recharge would benefit more areas than the Falling Creek site and still include the Ichetucknee Springs basin.

It is a passive system depending on gravity, maintenance costs are minimal and changing the desired invert elevation is as simple as cutting and welding or a spillway.

All the wetlands depicted on the plans are important and they should be purchased with Amendment 1 money, directed towards buying environmental sensitive lands. For those opposed to recharging swamp water into the aquifer, this water still recharges naturally all along the Suwannee through springs, vents and siphons and into the numerous stream to sink areas in the District.

Out of professional respect, if people have misgivings about the plan, please allow me to discuss my thoughts with them. This is not a comprehensive scientific study, it is just a proposal based on experience.

Sincerely,

Dennis J. Price, P.G.
SE Environmental Geology