Petruccelli Site Development Proposal – Additional Observations

Lenny Meyerson, PE

1. Application is Incomplete and Inconsistent with Regulations (referencing Proposed Site Plan revised 08-28-13)
   a. Refer to NYSDOH Residential OWTS Design Handbook (2012) Table 2
      Required Separation Distances from Absorption Field to DEC Wetland is 100 ft.
      The proposed absorption field is 50 ft from the wetland. The separation distance from the wetland matters a lot. There is a risk of partially treated sewage entering the lake. The short separation distance diminishes the pollutant removal of the septic system.
   b. The deep test hole and percolation test report dated 7/26/10 indicates that the water table is 7 feet below the surface and the "perc rate" has a 15 to 30 min/inch drop.
      Yet local residents report that water ponds on this site for weeks at a time.
      Why doesn't the soil absorb this water at the tested rate?
      Adjacent properties report water in their basements in the spring. This is not consistent with a 7 foot depth to groundwater. A logical explanation for these inconsistencies would be that there is a significant seasonal variation in the water table. That is why it is important to conduct soil testing in the spring and to observe soil mottling in the deep test hole. Soil mottling reveals seasonal changes in the water table.
   c. The referenced Proposed Site Plan states that there must be a minimum of 5 feet from the bottom of the absorption field to the water table. If the 7/26/10 soil test report is inaccurate and the de facto water table is higher than claimed, then this requirement may not be met.
   d. In the referenced Proposed Site Plan, the Westchester County Dept of Health states that there must not be reservoirs or controlled lakes within 500 feet of the Onsite Wastewater Treatment System. The proposed distance from Lake Waccabuc , by contrast, is less than 400 feet. The reason for the required additional separation distance is because potable water requires a higher degree of protection from pollutants than recreational lake water does. Consider that Lake Waccabuc is designated by the NYSDEC as a Class A water body and that its best use is as a source of potable water and consider that there are dozens of residents who drink this water.
   e. The proposed mitigation relies on enhancement and the NYSDEC considers this the least desirable form of mitigation. Restoration or creation of a new wetland off-site is preferable. By any measure, the proposed mitigation plan fails to achieve 1:1 status.

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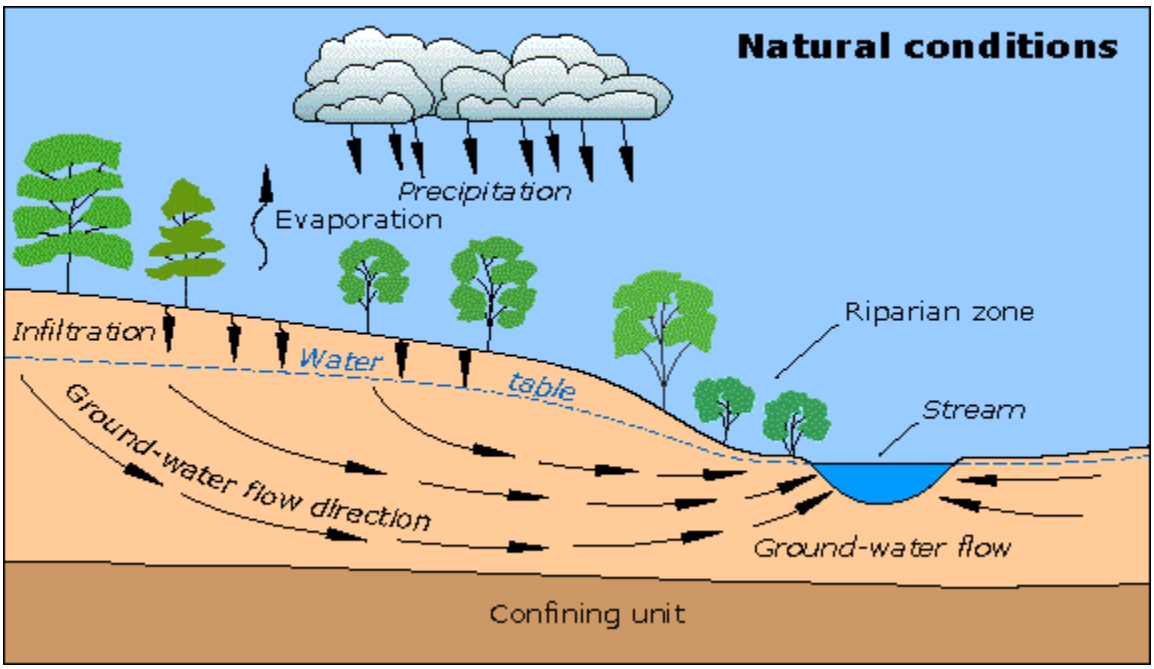
2. Eutrophication of Lake Waccabuc and Wetland Buffers

a. Wetlands are protected because they provide wildlife habitat, flood control and pollutant removal. The pollutant of concern that may harm the lake is phosphorus. Much research has shown that a minimum 100 foot buffer is key to preventing algae blooms from excess phosphorus.

b. The reason you need 100 feet of buffer is because septic system effluent flows through subsurface soils toward the wetland, stream and lake as shown below.



c. Less than 30% of the phosphorus in the wastewater is removed by settling in the septic tank because most of the phosphorus is soluble. This can only be removed by attenuation or chemical adsorption and precipitation as it travels through the soil. This is a slow process. If you shorten the travel time by reducing the buffer distance you risk eutrophication of your lake.

d. Once the phosphorus laden wastewater admixes with saturated soils, the attenuating properties of the soil are nil. Because of the reduced soil treatment time, even a properly designed and constructed septic system will still pollute Lake Waccabuc.

e. If Lake Waccabuc becomes eutrophic local residents will likely experience murky water choked by weeds, with algal blooms and summer fish kills.

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3. Regulatory Responsibilities

a. NYSDEC is responsible for issuing wetlands permits before construction in a wetlands buffer is permitted. DEC's Environmental Analysts do not consider the pollutant removal aspect of a wetland in their analysis. This is the responsibility of the Division of Water through the TMDL (Total Maximum Daily Load) process as was done in the NYC water supply watershed. Although Lewisboro, as a municipality located in the NYC watershed, has been given a phosphorus TMDL target, it has not been applied to this application.

b. Westchester County Health Department in a joint review with the NYCDEP determines if the OWTS meets regulatory requirements and is approvable. They rely on the NYSDEC Division of Permits for evaluation of wetlands impacted by proposals. Given the location of this property within the NYC watershed, I find it odd that the Division of Permits took a lax position in agreeing to permit the disturbance of the DEC wetland buffer.

c. Local Planning Boards determine if there are more stringent requirements needed to protect and preserve the environment and health of its residents. This is part and parcel of why local wetlands are designated. Lake communities often need regulations that go above and beyond the more generalized state regulations. TMDL programs are useful, but tend to cover such a large geographic area, local communities do not receive sufficient scrutiny. There is a trend of suburban lakes declining and I believe that local Planning Boards are the best defense to prevent becoming a predictable statistic. The Planning Board should consider the potential negative impact that this residence and septic system will have on the lake and deny this application for a local wetlands permit.

credentials
NYSDEC – Environmental Engineer – Division of Water 1986-2001
NYSDEC – Regional Water Engineer 2001-2007
Westchester County DOH - Deputy Commissioner – Environmental Health 2007-2009
Westchester County Board of Legislators – Environment and Energy - Septics Sub-Committee
NYS Certified Professional Engineer
Teach Seminars on "Ecosystems and Human Impact – Nutrients" to PE's and RA's