

October 13, 2008

BY FACSIMILE AND U.S. MAIL

Scott E. Sheeley  
NYS Department of Environmental Conservation  
21 South Putt Corners Road  
New Paltz, NY 12561

Re: Kent Manor Condominiums WWTP  
DEC Application 3-3722-00041/00003

Dear Mr. Sheeley:

Hill & Dale Property Owners, Inc. has requested Princeton Hydro, LLC to submit a brief comment in response to the water quality issues raised by the October 3, 2008 letter to ALJ Helene Goldberger by Kevin Young, attorney for the applicant for the above-captioned SPDES permit.

In the letter, Mr. Young asserts that the effluent from the WWTP discharge pipe would “benefit” Palmer Lake since the total phosphorus (TP) concentration in the effluent is lower than what is in the lake and therefore would dilute the in-lake TP concentration. Mr. Young’s assertion is based on the 0.05 mg/L permitted TP concentration in the effluent, and the 0.06 mg/L average of the four samples Princeton Hydro collected from the lake on September 3, 2008.

Mr. Young’s assertion is inaccurate because it ignores the dynamics of phosphorus use and cycling in the lake and in the stream which connects the WWTP discharge to the lake.

As an initial matter, the 0.060 mg/L average of the four measurements is at best a rough shorthand for the underlying water quality. The measurements themselves showed significant disparity, from 0.028 mg/L to 0.104 mg/L. The productivity of the lake at any point depends, among other factors, on the concentration of phosphorus at that location and time, not an overall average. However, even accepting the 0.06 mg/L concentration as a general value for TP, Mr. Young’s assertion would still be inaccurate as a result of the nature of phosphorus retention and cycling

Increasing inputs of phosphorus into a eutrophic lake results in more productivity even if the input is at a lesser concentration than the ambient level in the lake. This is because, as opposed to a flowing stream, a large portion of the phosphorus entering a lake will

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tend to be assimilated by plants and algae and integrated into the organic material. Moreover, phosphorus is likely to be re-cycled between the water column, the living and dead plant matter, and the sediments, and so made repeatedly available and therefore contribute toward the long term productivity problem. For that reason, limiting the total load of phosphorus into a lake is always a key factor in deterring a lake's transformation to a more productive trophic state. In other words, dilution is not a solution to phosphorus pollution in a eutrophic lake, especially where the diluting flow would contribute even more phosphorus to the lake. Nor, for that matter will the dilution of the discharge by the tributary have any meaningful impact, as that stream currently supplies relatively clean water to the lake.

A second reason why the discharge will exacerbate, rather than improve, the fertilization of Palmer Lake is the effect of the discharge on the dynamics of the tributary. As we discussed in our September 24, 2008 study titled "Tributary and Wetland Water Quality Monitoring and Analysis for Palmer Lake, Putnam County, NY," submitted to you by James Bacon, Esq. of the Croton Watershed Clean Water Coalition on October 6 2008, nutrient discharges into streams tend to distort or stretch their cycling or "spiraling" in the stream. The net effect is that more nutrients will be transported farther downstream, so that the stream's ability to assimilate and "hold" nutrients is reduced. Moreover, a low order tributary such as the one upstream of Palmer Lake would have a lower natural capacity to retain nutrients than higher order streams, so that the distortion caused by the discharge would have a relatively greater effect. As a result, we would expect an increase of more than 10 lbs/yr of TP in loadings to Palmer Lake as a result of the of the 10 lbs/yr WWTP discharge.

Finally, although Mr. Young briefly alludes to the in-stream wetlands providing "additional treatment" of the phosphorus discharge, as discussed in the September 24 Tributary report, our sampling indicates the contrary. Since downstream TP concentrations were higher than upstream concentrations, the wetland complex appeared to be a source of phosphorus to waters downstream and not a sink during the late summer season.

We appreciate the opportunity to further comment.

Yours truly,

A handwritten signature in black ink, reading "Fred S. Lubnow". The signature is written in a cursive, flowing style.

Fred S. Lubnow, Ph.D.  
Director of Aquatic Programs

cc: Judge Helene Goldberger