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October 25, 2012

Revised November 15, 2012

Town of Lloyd Planning Board
12 Church Street
Highland, NY 12528

**RE: MOUNTAINSIDE WOODS
TOWN OF LLOYD
SEWER FLOW CALCULATIONS**

Dear Board Members:

We are in receipt of comments/calculations from the public regarding sanitary sewer flows for the project. The comments can be summarized into two basic concerns.

1. The average daily sanitary flow rate used for the design is not correct.
2. A peak flow analysis of the sanitary sewers was not considered.

In response to these comments we offer the following.

1. The proposed average daily flow rate of 37,275 gallons per day was based on the NYSDEC Design Standard of 75 gallons per day per person times the estimated population of the project. It is our opinion that this flow accurately estimates the average daily flow rate for the project.

During review of the Engineer's Report for the Sewer District Extension the Town's consulting engineers, Morris Associates, requested that the proposed design flow be revised to reflect a more conservative design flow estimate of 400 gallons per day for 3 bedroom homes and 475 gallons per day for 4 bedroom homes with a deduction of 20% for water saving fixtures in accordance with the *NYSDEC Design Standards for Wastewater Treatment Works 1988* as quoted below.

"Section 15-0314 of the Environmental Conservation Law mandates the use of water-saving plumbing facilities in new and renovated buildings. Hydraulic loading, as determined from reference to Table 3 may be decreased by 20 percent in those installations serving premises equipped with certified water-saving plumbing fixtures. A combination of new and old fixtures can be considered on a pro rata basis."

This analysis yields a design average daily flow of 53,340 gallons per day which was the basis of the Engineer's Report for the sewer district extension.

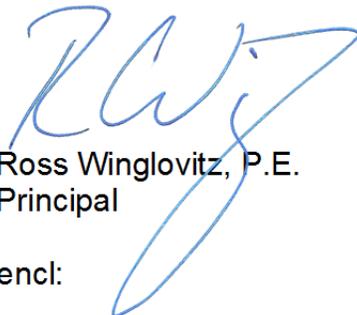
2. The analysis to determine the capacity of the proposed sewer mains has not been completed for the project as the estimated sewer flows are far less than the capacity of an 8 inch sewer main placed at minimum slope. The capacity of an 8 inch sewer main with the flattest slope proposed for the site (0.5%) has a capacity to flow approximately 550,000 gallons per day. This available capacity is more than 10 times the estimated average daily flow and would therefore easily meet the design requirement of passing the maximum daily flow rate which is 2 times the average daily flow rate or 106,680 gallons per day.

In evaluating existing flows downstream from the site, we have contacted Morris Associates, the Town's Engineer, regarding available flow data. Based on sewer flow monitoring performed by their office, the average flow in the sewer main in Commercial Drive, which is the sewer main hydraulically downstream from the site, is 134 gallons per minute or 192,960 gallons per day. This flow would correlate to a max daily flow rate of 385,920 gallons per day. When added to the project's maximum daily flow rate of 106,680 gallons per day, the total projected maximum daily flow rate would be 492,600 gallons per day. This projected total is less than the capacity of an 8 inch sewer main set at the minimum permissible slope of 0.4%.

In addition to the above analysis, the Town Engineer has requested that the applicant camera the sewer main from the proposed project's connection point to Commercial Drive to determine the current condition of the existing sewer mains and to evaluate any potential inflow or infiltration issues in this area.

If you have any additional questions and/or comments please don't hesitate to contact this office.

Sincerely,
Engineering & Surveying Properties, PC



Ross Winglovitz, P.E.
Principal

encl:

cc: file