

Memo

To: Keith Manz
From: Kirby Van Vleet
Date: June 14, 2007
Re: Response to June 7, 2007 Comments High Groundwater

At the request of the Town Board we will attempt to address three comments/concerns presented to the Town Board on June 7, 2007 by a group of homeowners.

“That the outermost boundaries of the aquifer be accurately determined at this time, while the water table is this high, to determine where a suitable runoff system can be installed to carry the water to an area river or stream of adequate size to prevent this from ever occurring again in the future of this Town. The “system” might have to include some kind of pumping station(s) capable of filtering the sand in the aquifer but removing the water down to a level that will not negatively affect any homeowners source of well water and at the same time “siphon” off the over abundance of water.”

The aquifer which underlies the Town of Wilton has already been fairly well defined with a known boundary. The surficial geology of the Town of Wilton was mapped in detail in the late 1970's. The aquifer is formed by a layer of sand which overlies a thick layer of clay. The aquifer is basically a sand plain overlying the silt and clay layers. The western edge of the aquifer is in the vicinity of Route 9 and extends from within the City of Saratoga Springs as far north as Moreau State Park. The northern boundary runs from east of Moreau State Park to Gansevoort. The eastern boundary runs from approximately Gansevoort to approximately Route 29 in the Town of Saratoga. The southern boundary extends back into the City of Saratoga Springs. The water table within a surficial unconfined aquifer such as this is not at a constant elevation but mirrors the topography to some extent. Regional groundwater flow appears to be generally toward the southeast. The aquifer is recharged by direct precipitation falling on the ground surface. All of the precipitation which falls on the sand aquifer flows from areas of higher relief to areas of lower relief which is not a consistent direction throughout the Town. It is not feasible to engineer any type of system which would increase the flow rate through the sand in an aquifer of multiple square miles and lower the water table. The flow rate through an aquifer is set by the coarseness of the sand which allows water to flow only so fast. The sands within the Wilton aquifer are very fine and consequently lateral groundwater movement is very slow. Piping is not feasible as the aquifer is many square miles in size. Pumping cannot be used as the number of wells which would be needed is in the many hundreds or even thousands and even then it may not influence the groundwater levels within the aquifer to any significant extent. Even if pumping wells were installed, a large piping system would be required to transport and discharge the pumped water.

Wilton is not alone in having significant impacts to multiple properties from elevated groundwater levels. The Towns of Gansevoort, Moreau and Queensbury have properties that have been seriously impacted. The unprecedented historical high water table is the direct result of the extremely high precipitation levels recorded over the past 18 months. If precipitation rates return to normal the ground water levels will generally lower themselves during the summer months as the summer time heat increases the amount of water plants expire and from the amount of water which evaporates from the soil and any ponds within the aquifer. There is not a feasible solution to physically lower the water table by artificial means within the Wilton area.

“That a moratorium be established on any building plans where it can be determined that a new homeowner’s home could be subject to the extreme conditions mentioned earlier..... Since the level of the water table has been established by the hydrogeologists you employed to do the study that is on your website, that water level is a known fact. Accordingly, anyone contemplating building a home for him or her self or homes to sell to others should first be required to prove that the site(s) would provide the necessary depth for a basement. If homes are planned to be built on slabs, potential water level problems for those homes should be established. The point is, that no home should be built in the Town of Wilton in the future that would be subject to the flooding that exists in many homes at this moment.” The Town has added a verification of a 3 foot separation from the basement slab to high groundwater in the inspection forms. In the past construction practices required vertical separation distances from basement slabs and septic systems. The separation distances were based on test pits excavated at each site to determine the historical high water table elevation. The historical high water table elevation is determined by inspection of the soils within a test pit for mottling, which is evidence of a prior high water table. The current problem stems from the fact that the current water table elevations appear to be the “new” historical high water levels. Contrary to the above comment, the level of the water table has not been “established”. What has been “established” is that at the wells being monitored that the water table has increased by approximately 3 feet since April 2006. The water table is not a flat surface at a consistent elevation throughout the Town of Wilton. The water table varies with the topography and the proximity to surface water bodies. Verification at each building location that the historically high water table is at least 3 feet below the basement slab will be required, due to the variation of the water table surface.

“Finally, a study should be completed to determine if future residential and commercial development might have an adverse effect on the normal level of the aquifer-that is the level at which residents can access the water, but not be flooded by it. It would seem that the greater the quantity of acreage that is covered by buildings and blacktop, the greater the likelihood that the rapid runoff from such sources would create an imbalance that could lead to future recurrences of the present situation-which, in hindsight should never have occurred.” In the Town of Wilton all drinking water is supplied by wells constructed in the surficial aquifer. Most of the area of the Town on the west side of I-87 is supplied by municipal water extracted from wells within the surficial aquifer. This area of the Town is also serviced by the Saratoga County Sewer system. The sewer system removes all waste water from the area of the aquifer and discharges the effluent outside the aquifer. This actually continually removes water from the aquifer system and adds or moves no water to other areas of the aquifer. Since the aquifer is recharged by direct precipitation, development has little to no impact on recharge to the aquifer.

Lands on the east side of I-87 are typically on individual wells and septic systems. Water is removed by the wells and discharged back into the ground through the septic system, with no additional net gain in water added to the system.

Development should have no impact on the groundwater table within the Town. A similar amount of water falling on a developed land surface will enter the aquifer as it would on an undeveloped land surface. Actually, additional development on the west side of I-87 would cause additional pumping from the aquifer for drinking water along with removal of the water from the aquifer system as it is discharged out of the area through the County sewer system.

In summary, artificial systems are not feasible to be used to lower the water table in an aquifer of this size. Pumping cannot be used as there is no place to discharge all of the pumped water. The Town of Wilton has recently verified that there is an inspection to confirm that a minimum of three feet of separation between any future foundation slab and the high water table. This will help any future homeowners from being impacted by high water table concerns. Future development should not have any negative impacts on the water table elevations within the Town.

Not to be repetitive, but it is very apparent that unprecedented precipitation over the last 18 months has caused a significant impact on the groundwater table within the Town of Wilton. The average annual precipitation over the last 26 years is 38.73 inches, including the current year. Excluding the August 2005 through July 2006 annualized data; the precipitation has ranged from a low of 27.69 inches in 1980-81, to a high of 48.97 inches in 1981-82. The total precipitation from August 1, 2005 through July 31, 2006 was 61.21 inches, which is 58 % higher than the average, and 25 % more than the highest precipitation recorded over the past 26 years. Currently from August 1, 2006 through April 22, 2007 the total precipitation is 40.81 inches, which already exceeds the average annual precipitation over the past 26 years. High precipitation rates over the past year and a half have resulted in water table levels that are well above normal. Whether this can be attributed to global warming or just a natural cycle we don't really know. What we do know is that the water table elevation in many areas of the Town of Wilton is higher than ever recorded through no fault of anyone except nature.