



COLD SPRING ENVIRONMENTAL
CONSULTANTS INC.

- All Site Investigations
- Subsurface Investigations
- Pollution Remediation
- LEED Consulting
- Remedial Design/Construction

- Remediation Feasibility
- Remedial Design
- Regulatory Compliance
- Remedial and Social Costs
- Groundwater

March 6, 2009

Mr. Doug Kohl
Kohl Construction
33 Campus Plaza
Hadley, Ma 01035

RE: North Street Neighborhood Assoc.
Effects of Norway Spruce Removal on Hydrogeology.

The document from Mr. Jonc Nieger, a Landscape Designer of Regenerative Design Group is reviewed by the writer.

Of primary concern is the miss-application of annual plant transpiration uptake in an instantaneous calculation. The uptake of water by plants can and should not be applied in a "closed cell" nor used as an "instantaneous rise" model as suggested by Mr. Nieger.

Specifically, the assumption here is that the trees are removed and all at once that (annual) water volume that would have transpired to the trees is immediately "pumped" on the water table. The annual water uptake should actually be applied at the very least over a 5 month (150 day growing) season. By dividing by 150 days we find minimal response in height of the water table actually about 1/10 of one inch.

Not only are Mr. Nieger's assumptions incorrect, he ignores that the groundwater is sloping and continually wicks new water that infiltrates from the surface down gradient into lower reaches of the aquifer much like a conveyor belt that continuously runs. In addition enhanced evaporation from the lack of shade trees to an area that would receive increased sunlight is also not included in his analysis. Finally, "Hydrologic dynamics" such as groundwater recharge, infiltration and storm water drainage design actually *dwarf transpiration by plants* in most settings.

I will cede to Mr. Nieger that good site development design incorporates consideration of pervious vs impervious cover, storm water drainage recharge and landscape design that incorporates re-planting and water gardens in order to offset changes and result in a zero sum change to the Water Balance. A sound ecological approach in compliance with Stormwater Recharge Policy has been incorporated in the design plans.

Cold Spring Environmental Consultants Inc.

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