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HILL LAW

January 2, 2015

BY ELECTRONIC MAIL: peggywn@aol.com
and FIRST CLASS MAIL

Carlisle Zoning Board of Appeals
Carlisle Town Hall
66 Westford Street
Carlisle, MA 01741

Re: Application for Comprehensive Permit – 100 Long Ridge Road

Dear Members of the Board:

As you know, I represent 26 families that are neighbors or abutters to the above-referenced proposed Chapter 40B project. Scott Horsley and I have reviewed the latest submission from Board's hydrogeological consultant, Steve Smith, dated December 30, 2014. We have also reviewed the revised set of plans filed by the Applicant on December 8, the memorandum from the Applicant concerning its waiver requests dated December 30, and the Applicant's attorney's letter dated December 31. We have not yet reviewed your civil engineering peer reviewer's report dated December 22, but have some initial comments on the revised design of the Project.

A. *Hydrogeological Testing*

First and foremost, we remain very concerned with the Board's response to date with regard to the impacts this Project will have on our clients' drinking water wells (not to mention the proposed Project's own wells). Despite months of debate on what kind of tests should be performed and data collected, there has not been any clear directive on what the Applicant must do to demonstrate that the Project will comply with state and local environmental protection standards and not otherwise adversely impact proximate natural resources including groundwater.

Through their hydrology expert Scott Horsley, the neighbors and abutters have requested that the Board order the Applicant to perform the nitrogen loading mass balance analysis prescribed in DEP's Guidelines for nitrogen sensitive areas (Mr. Smith refers to this as a "nitrogen plume analysis), determine groundwater flow and direction and other hydraulic characteristics of the soils on the Project Site as recommended by Steve Smith, determine groundwater flow direction and rate of flow in the bedrock aquifer, and conduct a pathogen

transport analysis to determine whether contamination from the Project's septic system will reach the wells of the abutters and of the Project itself. We also recommended that the Board adopt the "Well Monitoring Plan and Protocol" that the Board previously developed for the Coventry Woods 40B application, to further protect against drawdown and water quality impacts on the neighbors' wells. Most if not all of these concepts are included in Mr. Smith's various recommendations to the Board between October and December, 2014. We are not aware of any disagreement Mr. Smith has with Mr. Horsley's recommendations.

We respectfully request again that these procedures be implemented by the Applicant for peer review by the Board, and suggest that the Board order the Applicant to undertake this work at its meeting this coming Monday evening.

B. *Waivers from the Board of Health Regulations*

By letter dated December 30, 2014, the Applicant withdrew requests for waivers from the Board of Health's supplementary sewage disposal regulations. Significantly, the Applicant is now not seeking a waiver from the 150' setback requirement (septic systems to wells) or from the more strict design flow requirements (165 gallons per day, per bedroom). The Applicant explained in its letter that it feels that with the re-design of the Project, it no longer needs the waivers it had originally requested. By letter dated December 31, 2014, the Applicant's attorney seems to suggest that with the withdrawal of these waiver requests, the Board has no authority to inquire into impacts from the project's septic system on the neighborhood's groundwater.

The Applicant is under the mistaken impression that its Project, as modified on December 8th, complies with the Board of Health's regulations. First, the design flow requirement of Section 15.221 requires a system serving a three-bedroom house to have a presumed design flow of 165 gallons per day, per bedroom. A house with greater than six bedrooms can have a design flow of 110 gallons per day, per bedroom. The rationale for allowing a smaller design flow for larger houses is that there is not a proportional relationship between wastewater flow and the number of bedrooms. For example, while a three-bedroom house might typically contain a small family of two parents and two children, a six bedroom house would not necessarily have twice the number of occupants (using the sinks and toilets). The Applicant is applying a self-serving interpretation of this regulation, which contradicts this policy rationale, by aggregating the bedrooms in all of the houses that are served by one septic system, and since that number is higher than six, it is applying the 110 gpd/bedroom standard to the septic system in calculating its design flow. This interpretation flies in the face of the purpose of the regulation, and cannot have been the Board of Health's intent. The Board of Health should weigh in on this.

The Applicant is also ignoring Sections 15.290 -15.293 of the Board's Regulations, governing "shared septic systems," which requires that all such systems be designed with a minimum design flow of 165 gpd/bedroom. The Regulation defines "shared system" by reference to the Title 5 definition under 310 CMR 15.290, which is a septic system to serve "two or more facilities." Each of the three proposed septic systems serve multiple residences, and therefore would be treated as a "shared system" under Title 5. Even if the Project were to be

viewed as a "condominium" for purposes of Title 5, the Board's regulations still require a minimum 165 gpd/bedroom design flow.

The setback requirement, found in Section 15.211, requires a 150' setback "between a system 2000 GPD or larger to a well." Given that each home will have three bedrooms, and each system will serve at least six homes (system "3" would serve seven homes) the total design flow for each septic system will be well over 2,000 gallons per day. Even if the Applicant could calculate its design flow based on the 110 gpd/bedroom flow rate, System "3" would still be above 2,000 gpd (330 gpd x 7 homes = 2,310 gpd) and therefore would need a 150' setback to wells. Systems "2" and "3" are within 150 feet to an abutter's well, and System "1" is within 150 feet to two wells on the Project Site.

I also question the appropriateness of the Applicant classifying Systems "2" and "3" as separate systems where they are physically in the same location. Dividing this septic system into two parts seems like a deliberate and artificial attempt to avoid triggering the Regulation's and Title 5's requirements that apply to systems with design flows in excess of 2,000 gpd. "Segmentation" is not permitted under Title 5, and should not be tolerated here. See, e.g., GPT-Acton, LLC v. Dep't of Envt'l Prot., 66 Mass. App. Ct. 103, 104 (2005).

Finally, I question what design changes obviated the need for these waivers. The Applicant previously considered its septic systems as having a design flow greater than 2,000 gpd, or else it wouldn't have previously requested a waiver from the 150' setback requirement (which only applies to such systems). The number of house, number of bedrooms, and number of houses being served by each septic system have not changed with the latest plan revisions. The Applicant stated that the revisions to the plans have eliminated the need for these waivers, but the Board should insist on an explanation.

C. *Stormwater Management Design*

One of the significant design changes in the latest set of plans is the elimination of a large bio-retention basin near the Site's frontage on Long Ridge Road, and replacing its function with a dispersed network of rain gardens along the Project road's frontage. However, these rain gardens are located close to the Project's wells, in many cases within 100', which is in violation of the state DEP Stormwater Handbook (excerpt attached). Further, one of the rain gardens is within 50 feet of septic system "1," also in violation of the Stormwater Handbook. The Board should also evaluate the appropriateness of the new bio-retention area in the location of the road's hairpin turn, which appears to be within 100 feet of septic systems "2" and "3." This bio-retention area may be downgradient from those septic systems, and the mounding effect of those systems may interfere with the infiltrative capacity of the stormwater system.

Given the holidays, our review of the plethora of new submissions was limited, but we will have more comments on these issues before the Board's next hearing. Thank you again for your vigilance in reviewing this significant land development proposal.

Very truly yours,

Daniel C. Hill

Enc.

cc: Doug Deschenes, Esq.
Thomas Harrington, Esq.
Board of Selectmen
Planning Board
Conservation Commission
Clients

Table RR

Rules for Groundwater Recharge
All BMPs must be designed according to the specifications and procedures in Volumes 2 and 3 of the Massachusetts Stormwater Handbook. **Except as expressly provided herein, entire required recharge volume must be infiltrated.** **Required recharge volume must be infiltrated only to the maximum extent practicable, if:** **The site is comprised wholly of C and D soils and bedrock at the land surface; Recharge is proposed at or adjacent to a site that has:** ➢ **been classified as contaminated;** ➢ **contamination that has been capped in place;** ➢ **an Activity and Use Limitation (AUL) that precludes inducing runoff to the groundwater pursuant to MGL Chapter 21E and the Massachusetts Contingency Plan, 310 CMR 40.0000;** ➢ **has a solid waste landfill as defined in 310 CMR 19.000; or** ➢ **groundwater from the recharge area that flows directly toward a solid waste landfill or 21E site.** **Design Requirements:** **At least 44% of the TSS must be removed prior to discharge to the infiltration structure if the discharge is:** ➢ **within a Zone II or Interim Wellhead Protection Area;** ➢ **near an Outstanding Resource Water or Special Resource Water;** ➢ **near a shellfish growing area, cold-water fishery, or bathing beach;** ➢ **from a land use with higher potential pollutant loads; or** ➢ **within an area with a rapid infiltration rate (greater than 2.4 inches per hour).** **Except as set forth below, roof runoff from may be discharged to the ground via a dry well without pretreatment. The discharge of roof runoff to the ground requires pretreatment by means of a BMP capable of removing metals, such as a sand filter, organic filter or filtering biorention area, if the roof is a metal roof that is located in the Zone II or Interim Wellhead Protection Area of a public water supply and/or at an industrial site. Metal roofs are galvanized steel or copper.** **Depth to groundwater: At a minimum there should be a two-foot separation between bottom of structure and seasonal high groundwater.** **Minimum Infiltration Rate. 0.17 inches per hour.** **All infiltration structures must be able to drain fully within 72 hours.** **General Setback Requirements:** **Soil Absorption Systems for Title 5 System: 50 ft.** **Private wells: 100 ft.** **Public wells: Outside Zone I** **Public reservoir, surface water sources for public water systems and their tributaries: Outside Zone A** **Other surface waters: 50 ft.** **Property Line: 10 feet** **Building foundations (including slabs): >10 to 100 ft. depending on type of recharge BMP. See BMP description for exact minimum setback.** **Specific BMPs have additional setback requirements. See Volume 2, Chapter 2.**