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To: Planning Board

Fr: Sheila Page, Assistant Planning Director

**Re: Impervious Surface Allowances in Special Permit Residential Developments**

Lexington's Zoning defines impervious surface as:

*Any surface which reduces or prevents the absorption of stormwater into previously undeveloped land. Examples are buildings, parking lots, driveways, streets, sidewalks, and any areas surfaced with concrete or asphalt.*

In 2010, an impervious surface limitation was added to the Special Permit Residential Development zoning as a way to measure the development's impact.

Impervious surfaces prevent the natural soaking of rainwater into the ground and slowly seeping into streams. Instead, the rain water accumulates and flows rapidly into storm drains. This results in flooding and harm to streams and wetlands. All impervious surface can be mitigated in some way, ideally the run-off is infiltrated close to where the precipitation lands to maintain the natural/original processes.

The question has arisen whether a property that is limited by the impervious surface coverage can remove impervious surface coverage in one area to use elsewhere by converting an impervious surface such as a driveway to a pervious surface using porous pavement or pavers. With porous pavers, rain water can pass in and around the pavers to infiltrate the reservoir substrate underneath. In comparison, a gravel drive way, while seemingly natural, is compacted and does not allow rainwater to flow down through it.

Areas paved with porous asphalt or porous pavers can have run-off coefficients within similar ranges as lawn, if built properly. The rain water can pass around the pavers, enter the joints and flow through the system. Porous asphalt pavements and pavers are typically built over an uncompacted subgrade to maximize infiltration through the soil and have an adequate stone reservoir to allow infiltration to occur. The success of this pavement depends on proper design; that mimics the soil's infiltration rates and storage capacity. In addition, there must be at least a 2-foot separation from high ground water.

The Conservation Commission, when evaluating impervious surface, considers the peak run off rates (and volume) as well as infiltration rates. In meeting the performance standards, the Commission's practice dictates that credit cannot be taken for the removal of existing impervious pavement. In other words, impervious surface in one area cannot be used in another area of the site without meeting the performance standards. As such, the exchange may not be even and would be based on a pre and post watershed drainage analysis.

A second issue has arisen as to whether a swimming pool is to be considered impervious or pervious. Research shows differing opinions as the pool can be designed to prevent run-off in certain storm events but a pool does not allow infiltration. The Conservation Commission's rules clearly state that pools are considered impervious unless a drainage analysis shows that it can capture the entire design storm event without overflowing for at least a 24-hour period after the end of the storm event.

When considering a swimming pool under the definition of impervious surface in the zoning bylaw stated above, a pool does prevent the absorption of stormwater and as such should be considered a modification to the special permit if that additional impervious surface exceeds the allowance. The applicant would then have the opportunity to demonstrate that the pool is not preventing stormwater absorption through mitigation.

If the Planning Board is using the impervious surface to limit the development's impact, then porous pavement could be swapped for impervious pavement in order for a project to stay within its development limits; provided it is built properly to truly act in a porous manner.

If this swap allows the Applicant to remain within the permitted impervious limits, they could do this with Planning and Building Office review; without Planning Board Modification to the Special Permit. It is expected that the plans would be reviewed by a licensed engineer either from the Engineering Division or by an engineer engaged by the Building Office under MGL ch. 44, s. 53g. The Applicant should be aware that they may need to provide funding for this review depending on the complexity.

If the impervious surface allowance is shared by the entire development instead of each property having their own allotment, the use of the allowance must be approved by the development's Homeowner's Association.

Please be aware that any development or property under the Conservation Commission's jurisdiction would require an additional approval from the Conservation Commission.