Entered into record by Barbara Raabe 6/18/12

EXHIBIT NO. 135.

Ah, the slippery slope

AN EXPERT ADVISES TO GO NATIVE AND PLANT PROLIFICALLY

TOM REESE / SEATTLE TIMES FILE

Lots of rain falling on lots of hills and cliffs make the Seattle area vulnerable to slides, including this one in Magnolia.

ELLIOTT MENASHE of Greenbelt Consulting is the most quotable forester I've ever met. Maybe that's because he's evolved from traditional forestry to the challenge of restoring steep slopes. There's plenty of work to keep him busy, from the precipices of Perkins Lane to the beach-side bluffs of Whidbey and the San Juan islands.

Erosion problems are increasing, and not just because of climate-change extremes. Menashe cites clear-cutting as the major culprit, along with too much grading, soil compaction, stormwater, drainage and wind.

"We continually create tomorrow's crisis today," he declares of the suite of issues that arise when forests are cut down for development. He hopes that clear-cutting can be stopped not as a result of regulation but because of enlightened self-interest. "What's good for wildlife is good for the value of your property and slope stability," says Menashe.

The best time to deal with steep slopes is before there's a critical problem. "Usually my clients are desperate when they come to me," says Menashe wearily. He emphasizes that humility and common sense are needed in dealing with nature, noting that "You can't change the natural drainage patterns and slope stratigraphy; they are what they are."

Slope stratigraphy? "It's a geologic term for how glaciers stacked clay, gravel and till in layers like a cake made by a mad man," explains the colorfully eloquent Menashe. You'd never guess this is a guy who spends his day hanging off cliffs, patiently planting vine maple and sword fern into near-vertical surfaces.

Menashe is opinionated about plants. "Running bamboo is the 21st-century ivy," he declares. "Never plant it within 50 feet of a slope, ravine, marine or lakefront!" Bamboo roots form an impenetrable mass that sucks up water and nutrients, and smothers native plants. At the same time, bamboo's root system is far too shallow to help hold the slope.

He recommends plants that are "generalists, with wide biological amplitude." Which means native plants that are fast-growing, strong and adaptable, with resilient roots. "If you have madrones, sword ferns and Douglas fir, do what you can to keep them; if you don't, then plant them," he says. Red flowering currant, serviceberry, Indian plum and native roses are slope-stabilization workhorses. He admits that slowing down slope instability isn't always pretty and that he calls in a landscaper when aesthetics are involved.

Menashe outlines four basic ways to protect your property from erosion before it occurs: First, decrease or get rid of lawn, which absorbs very little water compared to trees and shrubs. Create a buffer of native plants between your ornamental garden and the edge of a steep slope. Buffer width depends on the size of the lot, with an ideal depth of 30 feet, although a 15-foot-wide buffer will work.

The last two strategies are eradicating invasive plants such as ivy, thistle and blackberries, and dealing with any drainage issues before they get worse. "You can save thousands of dollars simply by not clearing," says Menashe.

It's not that Menashe is against engineering solutions, but he sees vegetation as integral rather than incidental to a project's success. He also uses the full gamut of walls, geotextiles and terracing. "Engineering structures are strongest at the start and grow weaker, while plants start out weak and grow stronger over time," he points out.

Trees and shrubs are miraculous in their invisible ability to recirculate groundwater, thus protecting our properties from erosion. Their roots not only repercolate water by pulling it up and dumping it back down into the soil, they also move water laterally from wetter areas into drier ones.

For more environmental wisdom see *www.greenbeltconsulting.com*; for a list of resources and plant recommendations for slope stability, download a handout at *http://www.greenbeltconsulting.com/articles/Shoreline%20Management%20Handout%202010.pdf.*

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