

Ordinances debated as mountains move

by JEFF SCHMERKER

A rule might prevent slides, planners say

A homesite on a mountainside above Jonathan Valley Elementary could become the poster child for the potentially deadly consequences of unregulated hillside development in Haywood County.

In building a driveway and preparing a homesite on Late September Way in Campbell Mountain Estates, a developer modified an existing 40-foot vertical cut into a mountainside. But before the project could be finished, the mountain moved.

In the yard of a home at 31 January Heights, which is adjacent to and directly above the slope work, 2-inch wide fissures appeared like veins in the landscaping just off the home's back porch.

The slide appears to have been stopped — for now — thanks to quick work and an innovative engineering technique that injects a concrete-like substance into the hillside using iron piping. The hillside was then draped in fabric grids and coated in a geotextile material.

But the 40-foot cut, and the landslide it could have caused, spotlights clearly the effects of building homes where nature didn't intend them to be built.

The homesite where the work is occurring is owned by Billy Brede, a developer who planned to live there and use it as a showcase idea home for the development. Brede is also a member of the Maggie Valley planning board.

While not all land cuts end in landslide, the soil type present in this hillside, called meta-sedimentary, was the catalyst in this failure, said planners and scientists. The soil is flecked with mica, which can act like ball bearings, said Bill Yarborough, an elected board member for the Haywood County Soil and Water Conservation District. While the soil type may have contributed to the failure, the actual culprit is mica's presence in the weathered bedrock, said Rick Wooten, the senior geologist for geohazards with the North Carolina Geologic Survey in Asheville.

"You can take your hammer and knock it and see that it is pretty crumbly," Wooten said. "In hindsight, with the slope exposed, you can see that there are planes of weakness in the rock which contributed to the slope failure. It is not always something you can predict early on and may not be apparent until the slope is cut."

No rules broken

The cut into the mountainside in Campbell Mountain broke no rules or ordinances, said outgoing Maggie Valley Planner Kevin Byrd, because there were no rules to break. The county and the towns of Clyde and Canton have no hillside development ordinances. Waynesville does, though their rules may not have prevented this particular problem from occurring.

The Waynesville ordinance requires larger lots on high elevation properties and engineering plans on slope cuts, as well as engineering devices for slope retention. "Slope failures are not covered," Byrd said. "You can still encounter bad soils."

Haywood County will be one step closer toward having a hillside development ordinance this fall once a detailed five-foot contour topographic map of the county is completed, said Board of Commissioners Chairman Mark Swanger.

"Technology has always been a part of the problem," Swanger said.

By the end of this month Swanger expects the county will have that detailed topo map in hand and he plans to direct the county planning board to make an ordinance recommendation.

But slope failures are something that come with the territory.

“The problem we have is that you have what appears to be a slope that is fine to build on, and then in the right weather conditions there is topsoil on top of bedrock that slides off,” he said. “That’s indigenous to our area.”

The new maps, he said, will give county officials the ability to identify all slopes, even those just 10 feet tall, by their steepness, Swanger said.

“This is the state of the art — it’s the gold standard,” he said. “Once that tool is out there, we want the planning department to bring us the options.”

Brede, who is the project manager of Campbell Mountain Estates and also the president of the community’s home owners association, said the mountain cut was made a decade or more ago by previous land users. He was attempting to terrace the slope and then install integrated wall blocks when the failure occurred.

Developer acted quickly

After the slide, which occurred on June 22, Brede immediately met with a geologist to see what could be done to prevent further collapse.

The geotextile infusion process, which uses a series of fused pipes, some drilled 60 feet into the hillside, filled cavities in the hillside that formed during condensation of the earth. Some of that pumped geotextile material actually surfaced around the home on January Heights, having travelled several dozen feet through the ground to get there.

Before working on it, Brede said he performed preliminary tests on the slope that failed to show presence of the voids. Complete geotechnical tests, he said, are prohibitively expensive in residential developments.

“On a residential project,” Brede said, “nobody can do that many test borings.”

Until rules are in place to regulate slopeside development there will probably more failures like this in the future, said Yarborough. The vast majority of the land being developed in Haywood County, he said, is slopeside, not flat.

“This is a constant battle, and it is getting worse,” Yarborough said. “It’s like they cut the legs out from the mountain, and we keep having more and more problems.”

Tip of the iceberg

Yarborough said it will take a county-wide effort to put rules in place that will help prevent failures from occurring.

Campbell Mountain is just one of several in Maggie Valley having slope failure problems: roads in Horseshoe Cove, for example, are cracking in half as one side slides down the mountain. A contractor estimated the roads there, like Bridle Drive and Creekside Drive, would take \$5 million to fix, with no guarantee that the fix would work.

Brede added that there have been several small slope failures, including one that failed even after being supported, in Campbell Mountain. He said rooty plants are being used in addition to support structures like walls to stabilize the slopes.

Erosion control officials in the county have no say on how slopes are developed, said Yarborough, and neither does the planning department.

“There was no desk to cross,” he said. “Nobody has responsibility, but somebody should. This is crazy. It should have never happened to start with.”

Possible ordinances which could be adopted by the county, said Yarborough, might factor in variables including slope steepness, local rainfall data, soil types, the presence of bedrock, drainage, and development density. It could identify low, medium and high-risk areas.

The plan could be directed by the topo maps or by state-issued soil surveys and recommend building techniques or preventative measures, like retaining walls. “With soil surveys,” he said, “normally you know beforehand what you are getting in to.” The surveys, of course, don’t tell developers how soils will behave but they could be used to create a master plan of suitable development standards.

Wooten said that while landslides are more common in steep terrain, an extensive geological or geotechnical investigation likely could have prevented the problem. But such an investigation could make development prohibitively expensive.

Study started

Haywood County Planner Kris Boyd said the planning department has a subcommittee which has just begun to look into slope development standards. There are no recommendations yet from that subcommittee, said Boyd.

The state appropriated funds to counties as part of the hurricane relief act to study hillside development and to study stormwater control. Macon, sites of the Peeks Creek disaster, is first in line for the study.

The board of commissioners will ultimately be the ones to decide to adopt a slope development ordinance, and how tough it should be, Boyd said.

“It will be a topic for discussion,” he said. “We have had a talk of some type of guidelines for a period of time now.”

Boyd did note, however, that Buncombe County recently had an easy adoption of slope development standards.

“At some level, and in some way, I think they would be beneficial,” Boyd said. “But I’m not sure what that level is.

“We could go too far, be too restrictive, or we could be nonrestrictive,” he said. “We have to find some medium, and we have to find a balance, to promote this as well as not stop growth totally.”

For Yarborough, finding that balance means saving lives. Two years ago a woman died when a slope collapsed on her home, flattening it. He does not want to see that happen again.

“Maggie Valley dodged the bullet with the last hurricane,” said Yarborough. “It could have been unbelievable, but there was not as much rain here. This is the disaster I’ve been talking about for 20 years and if they keep doing this someone is going to be killed.”

Brede said he didn’t think any slopeside development rules would have prevented his slide from occurring.

“There is nothing, no ordinance or any rule that would have affected that situation,” he said. “That was a potential hazard waiting to happen ... Nothing I did ever indicated that would happen, it just happened. I had no intention to harm the home owner above me.”

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