Warning: Landslides often come after floods

By Gerry Gilmour
The Forum

As if blizzards, power outages, fire and flooding weren't enough, now Red River Valley residents have to worry about landslides.

A North Dakota State University professor of geology says flood waters have severely compromised bank stability along the Red and its tributaries.

Don Schwert says people should think twice about leaving dikes or constructing new dikes on river property.

Schwert says the clay soils along the rivers – especially on the Red itself – tend to flow when they become wet.

"Those clays are about as saturated as we'll ever see them, and the strength of the river banks and valley walls are at about the weakest we'll ever see them," he says.

We're not seeing the soil flows now, he says, because the banks and walls are supported by the pressure of flood water.

"Once that water drops, we expect to see very active slumping and landslide activity," Schwert says.

He says the effects of this movement – in terms of damage to property – will be localized. Dozens of homes in Fargo-Moorhead are at risk.

"That this is going to happen is inevitable. There are going to be some major problems," Schwert says.

Problems will be most pronounced in areas outside the pooling effects of the three low-head dams in Fargo-Moorhead, he says. The pooling effect on the upstream side of the Midtown Dam acts to stabilize river banks all the way back to the Interstate 94 bridge, for example.

"Those are remarkably stable banks. Those dams have been very successful for that," Schwert says.

Most commercial buildings along the river have deep foundations, and will likely not be impacted, he adds.

Homeowners can exacerbate or improve their individual situations, Schwert says.

He warns homeowners against placing permanent concrete or earthen dikes on their property.

"We have people who have enjoyed that grand view of the river, and now they've experienced flooding. Their homes and dikes are adding weight to those clays, and that's not good," he says.

"The more weight we add to those soils, the more they will flow. The risk is that not only could these dikes collapse, but they may take with them a significant portion of property and associated structures."

Anybody considering permanent diking should first have a comprehensive set of soil engineering tests conducted, Schwert says.

Those who choose to replace sandbag dikes with permanent structures "may not only be throwing away money, but increasing the damage to their property with the added weight," he says.

He says there are a number of steps homeowners can take to reduce the risk of river bank slumping.

First, they should avoid watering areas between their home and the river, as the additional moisture only weakens the soil. Secondly, they should rethink their riverside landscaping.

Blocks, boulders, timbers and rip rap only add to the weight on the soils, he says. He suggests homeowners return some of their large lawn area to its natural state, with shrubs and trees.

"You lose some of the sweeping view," says Schwert, "but it enhances opportunities for wildlife."