



Slumping, cracking has financial impact on F-M area

By Joe Whetham

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The drought gripping the Red River Valley has stunted crop growth, magnified the risk of grass fires and caused cities to impose watering restrictions.

But its effect extends beyond farmland and lawns.

One of the driest summers in more than a decade is agitating the clay material holding up Fargo and Moorhead.

This instability can crack sidewalks, driveways and streets, said Donald Schwert, a geology professor at North Dakota State University. The drought may also accelerate the erosion of banks along the Red River.

In late July, the Red River water flow was roughly 370 cubic feet per second. It was the lowest rate of flow in five or six years, according to the National Weather Service in Grand Forks, N.D.

The low river level can hasten the decay process, Schwert said. The Red River was at 14.4 feet as of Saturday, compared to 15.8 feet at this time last year.

He said bank erosion is "a natural event, although it can occur when water levels are manipulated through activation of upstream dams."

Schwert has described the Red River Valley as a bowl full of mud pudding. In Fargo, about 105 feet of expansive clay left over from glacial Lake Agassiz blankets the firmer glacial till below.

The Red River constantly cuts against the clay and weakens the banks.

Construction of riverfront homes puts added pressure on the weak clays, speeding up the erosion process. The result can be an underground "clay flow" that leaves the upper ground unsupported, which causes it to slump.

When Red River levels recede, the clays along the channel are no longer supported by the weight of water. Without this support, the clays push toward the channel, which leads to slumping.

The potential cracking of sidewalks, driveways and streets occurs when the clay material underneath shrinks because of a lack of water, Schwert said. Without support from the clays – which hold a lot of water – a sidewalk or driveway can potentially crack, he said.

Properly watering lawns may help avoid these types of ground failures.

"I'm a big fan of watering your lawn, especially where your lawn meets with your house, driveway or sidewalk," Schwert said. "This keeps the clays fully expanded, and homes and structures fully supported."

The Fargo Park District has lost facilities, trails and land to riverbank sliding. Crews removed an old barn at Trollwood Park in north Fargo about 10 years ago because it was sliding down the river embankment.

A road in Trollwood that connects to Elm Street and Broadway is used sparingly, and only opened during plays, because of slumping around the area, said Roger Gress, Park District executive director.

The district is also spending \$2.2 million on a new clubhouse and pro shop at Edgewood Golf Course in north Fargo, partly because of slumping. The existing clubhouse and pro shop are about 50 feet from the Red River. Both are at risk of sliding down the embankment because the land is slowly eroding.

"It's had a very significant impact on the Park District financially," Gress said.

Cass and Clay counties have bought out some homes that were sliding into the river. In the past two years, efforts were made to help homeowners avoid having to sell or move homes because of slumping.

In March, Cass County commissioners approved a revised subdivision ordinance for rural development that includes rules for how close homes can be built next to rivers.

On the Red and Wild Rice rivers, subdivision lots are required to follow a 350-foot setback.

"We think the ordinance can do a lot of future good for development," Cass County Engineer Keith Berndt said.

Readers can reach Forum reporter Joe Whetham at (701) 241-5557