

From: Joe Wilder <jwilder@fcva.us>

Sent: Wednesday, September 20, 2023 8:27 AM

To: Rhonda Sargent <rsargent7677@gmail.com>; George Bishop <geobishop1961@gmail.com>; Jeff Stevens <jeff_biggerdog@yahoo.com>; barryvanmeter@yahoo.com; Kcddy@yahoo.com

Cc: Michael Bollhoefer <michael.bollhoefer@fcva.us>; Kevin Alderman <kalderman@fcva.us>; Shawn Graber <shawn.graber@fcva.us>; Mark Viola <mark@violaengineering.com>; Amie Fuller <afuller@fcva.us>

Subject: Sinkholes - Cherokee Lake - Shawneeland Sanitary District

Shawneeland Sanitary District Advisory Committee,

I wanted to update you on the situation occurring at the location of the sinkholes within the Cherokee Lake.

As you know, water leaking from Cherokee Lake has been occurring for many years. The lake was built on top of Karst geology which allows for the creation of sinkholes.

Over a year ago, we began a process to use chemical grouting to fill in voids within the bedrock to slow down the leaks. We did a first phase of grouting and then stopped.

Recently, we had scheduled to discuss additional grouting at the August 2023 SSDAC meeting, but it was canceled due to severe weather.

About two weeks ago, Kevin Alderman, District Manager, let me know that the sinkholes in the lake were getting larger and becoming very unstable due to the drought conditions. The slopes around the sinkholes were collapsing as well.

I visited the site with Kevin and Mark Viola, P.E., who is the County on-call geotechnical engineer. We also met with Lt. Amie Fuller with the County fire and rescue. She is the current acting emergency management coordinator.

I also discussed the situation with Michael Bollhoefer, County Administrator.

After reviewing the site conditions and discussions within group, we have determined we have a public safety hazard that needs mitigated as soon as possible. We had already encircled the sinkholes with fencing but its not sufficient to protect the public.

I have attached a report from Mark Viola describing his recommendations for filling in the the sinkholes. As you can see in the report, an aerial photograph is provided that shows the size and extent of the sinkholes. It also shows the cracks in the soil indicating more soil will collapse into the sinkholes, thus making sinkholes even larger. We are also concerned that the sinkholes continue to grow towards the tree line which is private property.

We do not want any lateral damage to occur on this adjacent property.

His recommendation is to place large rocks in the bottom of the hole and then place rock/clay fill in compacted lifts to stabilize the slopes around the sinkholes until its completely filled in.

We would need to construct an access road so trucks could haul materials out to the sinkholes as we fill them in. Once the work is completed, we will put fencing around the area and it will need to be monitored into the future.

We do not have the type of equipment or expertise needed to perform this type of work with our crew at Shawneeland. We will be using GEI, the County on-call contractor to perform this emergency work.

They have provided an estimate of around \$50,000 for this emergency work. The large rock and some of the soil materials are available for use in Shawneeland already. Our crew will support GEI in any way possible to minimize costs.

We have available funds in the current approved budget to perform this work. No transfers from the Shawneeland Reserve account will be needed at this time.

We anticipate performing this work in the next 2 - 3 weeks.

The planned emergency work is designed to stabilize this area and minimize risk to the public. It may reduce some of the water that is leaking into the karst features below the lake, but that's not the primary objective of this work.

As we get closer to performing the work, I will let you know and we will notify the citizens of Shawneeland. The work should take approximately 2 weeks to complete once they begin. If anyone has any questions, please let me know.

Joe C. Wilder
Director of Public Works
Frederick County, Virginia
107 N. Kent Street
Winchester, Virginia 22601
email: jwilder@fcva.us
phone: 540-722-8215