



Kevin L. Shafer, P.E.
Executive Director

March 20, 2014

Urban Milwaukee
755 N. Milwaukee Street
Milwaukee, WI 53202

Via email: brucemur@me.com & info@urbanmilwaukee.com

Dear Urban Milwaukee:

The premise of your March 2014 article "*The Sadly Sinking City*" that solely blames damage to Milwaukee buildings with wood pilings on the Milwaukee Metropolitan Sewerage District's Deep Tunnel system is flat out wrong. Groundwater levels in the Milwaukee downtown area are affected by many forces, and the Deep Tunnel is not a significant one. See the attached report by Dr. Doug Cherkauer, describing his assessment of the significant groundwater influences.

Construction on the Deep Tunnel system did not start until the 1980's. Press reports from 1954 cite a number of buildings with troubled wood pilings after the water table mysteriously dropped 18 feet, exposing the pilings to bugs that love to feast on wood pilings. Wood pilings will last a very long time if they stay wet. If they are allowed to go through cycles of dry and wet, they will begin to rot. As responsible building owners have known for decades, to prevent damage, they need to have systems in place to keep the pilings wet, especially in areas where the pilings extend above the water table. Buildings with rotting wood piles have not had proper maintenance over the years.

There are multiple factors that dictate water levels under buildings where wood pilings exist. In a 2004 report, an expert with the United States Geological Survey concluded that it can take water up to 255 years to drain from the surface, through bedrock, down to the level where the Deep Tunnel system is located 300 feet underground; however, old water wells (that have not been properly abandoned) under buildings cut directly through bedrock like a huge straw and can quickly drain water down to lower levels in the substrate. Other significant dewatering factors include:

- Lake Michigan water levels directly impact the water levels in shallow aquifer.
- Rain, snow melt, and periods of dry weather can significantly impact the shallow aquifer.
- Some buildings have pumps to remove water from underground to keep basement levels from flooding; these pumps can dewater the shallow aquifer in a localized way.



milwaukee metropolitan sewerage district
260 W. Seeboth Street, Milwaukee, WI 53204-1446
414-225-2088 • email: KShafer@mmsd.com • www.mmsd.com

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- Densely populated areas have more concrete, asphalt, and roof tops that do not allow water to drain into the ground.
- Leaky storm and sanitary sewers can move ground water from one location to the nearest creek, stream, or river, or a wastewater treatment plant.

The Milwaukee Metropolitan Sewerage District was not alone at the table when the Deep Tunnel was designed and then approved after extensive reviews by the Wisconsin Department of Natural Resources.

So, how does the water table differ today for a downtown building that is located near the Deep Tunnel compared to one that's not? As Dr. Doug Cherkauer, Emeritus Professor of Geosciences at UW-Milwaukee, pointed out in a similar story by your reporter, "The level of groundwater is no lower near the Deep Tunnel than elsewhere, ...and any depletion is due more to underground wells and other causes."

Sincerely,

A handwritten signature in black ink that reads "Kevin L. Shafer". The signature is written in a cursive style with a large, stylized initial 'K'.

Kevin L. Shafer, P.E.
Executive Director
Milwaukee Metropolitan Sewerage District