



CIVIL TALK

CIVIL ENGINEERING ♦ SURVEYING

STRUCTURAL ENGINEERING ♦ GRANT WRITING

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A NEWSLETTER FROM HENEGHAN & ASSOCIATES, P.C.

Celebrating Our 24th Year in Business

May 2010

April Showers Bring May Flowers

Yes it's true that April showers bring May flowers. But those showers sometimes continue into May and June, July, etc. which also brings local flooding to the area. Those floods are hard on infrastructure which can cause levees to break, roads to flood and erode, and ditches and water retention areas to overflow.

While most of you reading this newsletter witnessed The Great Flood of 1993, we were not around to witness one of the biggest floods in U.S. history—that was the Great Flood of 1844. The flood in 1844 is considered the biggest flood ever recorded on the Missouri River and Upper Mississippi River in terms of cubic feet per second discharged at Westport Landing, Kansas City. While it was estimated that 625,000 cubic feet per second was discharged in 1844, the crest on July 16, 1844 was approximately one foot lower than that of the 1993 flood. The impact of the 1844 flood was not as great as floods in the 20th century due to the smaller population; but the impact of the flooding was greater in some ways when compared to 20th century flooding because of the minimal number of levees, and in some instances no levees, to hold back the water. As a result of The Great Flood of 1844, Congress enacted the Swamp Act in 1949 to provide land grants to build stronger levees.



**The Great Flood of 1993
Festus, MO**

The second biggest flood in the history of the U.S. was The Great Flood of 1951 when 573,000 feet per second was discharged. The 1951 crest on July 14, 1951 was estimated to be two feet lower than the flood in 1844 and three feet lower than the flood of 1993. However, the flood was the most devastating in Kansas City because the levees were not able to withstand the flooding.

The flood of 1993 was actually the highest flood when compared to the floods of 1844 and 1951, but it had the lowest discharge (541,000 cubic feet per second).

Kansas City survived the flood of 1993 better than most of the other communities due to improvements made to the city's levees following the Great Flood of 1951. The Great Flood of 1993 is one of the most costly and devastating in the history of the U.S. with approximately \$15 billion in damages.

The hydrographic basin affected by this flood measured about 745 miles long and 435 miles wide, totaling 320,000 square feet. The flooded area totaled about 30,000 square miles.

According to a committee of the National Research Committee in the article "Climate Change Will Have a Significant Impact on Transportation Infrastructure and Operation," found at www.eurekalert.org, the following five climate changes can have a significant impact on transportation in the U.S: 1) increases in very hot days and heat waves; 2) increases in Arctic temperatures; 3) rising sea levels; 4) increases in intense precipitation events; and 5) increases in hurricane intensity.

While the impact of these climate changes will vary from one location to the next, one consistency will be that the changes will be costly and will require changes in the planning, design, construction, operation and maintenance of transportation systems. When a road is inundated with water, especially for a long time, the various materials in the composite pavement structures become saturated. This saturation can reduce the strength of the road pavement material. Once the pavement is saturated, it takes time for moisture to drain from the material and for the full strength of the road to return.



In addition to the negative impact flooding has on roads, the detrimental affects from flooding can also be seen on bridge piles as shown in the adjacent picture, commonly referred to as scouring. Scouring is caused by swiftly moving water which can scoop out scour holes which compromises the integrity of a bridge. Bridge scour is one of the three main causes of bridge failure. In fact, it is estimated that 60% of all bridge failures is a result of bridge scour. The water usually flows faster around piers and abutments making them susceptible to scouring.

While we are generally at the mercy of the acts of Mother Nature, Heneghan and Associates can design your transportation projects and perform hydraulic analysis to help reduce the negative affects that mother nature might have on your infrastructure.

Surveying & The Cemetery Oversight Act

Many of you reading this issue of Civil Talk might recall last year when graves were allegedly dug up in Burr Oak Cemetery in the Chicago area. Those digging up the graves, then allegedly re-sold the cemetery plots. As a result, Illinois legislators recently passed House Bill 1188, called the Cemetery Oversight Act. The new legislation will repeal the Cemetery Care Act and Cemetery Association Act on March 1, 2012.

When the new bill takes affect, each cemetery will be required to have an overall map of the property defining all plots, blocks, sections, avenues, walks, alleys, and paths and respective designations. If you are in need of a survey or map in order to meet requirements of this new legislation, Heneghan and Associates, can help.

While most all public cemeteries in Illinois will be impacted by the new legislation, some cemeteries will be exempt including: 1) family owned cemeteries; 2) any cemetery authority that has not engaged in an interment within the last 10 years and does not accept or maintain care funds; and 3) any cemetery authority with less than 2 acres that does not accept or maintain care funds. Exempt cemeteries must apply for exemption within one year.

Meet & Greet MONICA FRENCH



This month's "Meet & Greet" employee is Monica S. French. Monica is a Project Engineer at Heneghan and Associates' (HA) Centralia office. Monica has been an HA team member for almost 13 years. She graduated from the University of Illinois in 1997 where she earned her B.S. degree in Civil Engineering.

Monica received her professional engineering license in 2002 and recently received her certification in documentation with the Illinois Department of Transportation. While versed in the different fields of civil engineering, Monica's forte is transportation. She is currently assisting the cities of Mount Vernon and Centralia with several different transportation projects. A couple of Monica's past projects include Cedarhurst Center for the Arts in Mount Vernon and road projects in Cape Girardeau, MO. When not working, she spends her time with her husband and 2 young daughters. Monica is an avid photographer which has resulted in many beautiful pictures—one which is used by the Centralia Chamber of Commerce to promote Centralia's annual hot air balloon festival. If you have engineering needs, just call Monica—she'll be glad to help!

CIVIL TALK is published by Heneghan & Associates P.C.
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