

Planned Spill Retention and Runoff Filtration Structures on Interstate 65 in the South-Central Kentucky Karst

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Abstract

In December of 1994, following a meeting with Kentucky Transportation Cabinet staff, a letter was sent to the Cabinet from the Superintendent of Mammoth Cave National Park. Anticipating widening of I-65, the letter outlined ecological justifications for retention and filtration structures designed to mitigate pollution. In May of 1997, Kentucky Transportation Cabinet staff and Ecologist Jim Keith of Earth Tech Environmental Consulting in Bloomington, Indiana, were invited to Mammoth Cave National Park for discussions on runoff mitigation structures. To build support for highway runoff retention structures, the south-central Kentucky karst was nominated for inclusion on the Karst Waters Institute's global list of the "Ten Most Endangered Karst Communities for 1998." In June of 1998, a meeting with Kentucky Transportation Cabinet and Federal Highway Administration staff was held at Mammoth Cave National Park. Agreed upon were basic measures to filter routine runoff and temporarily contain major spills. These will be low crushed rock check dams originally built as silt checks needed during construction. Basin capacity will be 10,000 gallons with grass waterways to and through retention basins underlain with geotextile fabric to minimize soil piping. The basins are designed to slowly filter routine runoff while greatly retarding spill entry into the cave aquatic ecosystem. The design and implementation of runoff retention structures along I-65 was a major precedent for the Kentucky Transportation Cabinet. Formerly, roadway runoff was deposited into the nearest sinkhole for quick surface water removal. Additionally, a sinkhole was often capped if it received no roadway runoff and was found within designated right-of-way areas. A cooperative, multi-agency effort in this endeavor has led the Kentucky Transportation Cabinet to review its drainage policy in karst areas and to formally initiate discussions on this policy.