The University of North Carolina, Chapel Hill (UNC) is considering a variety of measures to reduce flooding at the Coker Arboretum. As underground storage has been proposed as one recommended flood control measure by Rummel, Klepper, & Kahl LLP (RK&K) and Biohabitats Inc., this report explores the design of such storage to deliver external benefits of providing the arboretum with an auxiliary water supply for irrigation as well as reducing downstream nutrient loading. Historic rainfall data from 1947-2014 was used to analyze the performance of twenty four rainwater harvesting systems of varying capacity and location. Ultimately, the most cost effective system was determined to have 76 kgal capacity capable of replacing nearly 48% of annual arboretum irrigation demand.

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