Beneficial Use of Illinois River Sediment for Agricultural and Landscaping Applications

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Abstract: This report is a review of the sediment beneficial use project coordinated by the Illinois Sustainable Technology Center (ISTC), which became known as the "Mud to Parks" project. This document focuses on published and unpublished results and insights that researchers developed between the late 1990s and 2017. It is not intended to be a comprehensive technical review of sediment beneficial use, and therefore, includes references to a limited number of publications by other researchers. Although it mainly involves Illinois watersheds, potential applications of results and insights will likely be useful in other areas. Although much of the effort was centered on fine-grained sediment, a large part of the project involved placing sediment on sandy agricultural soil. The Sand Farm Project is reviewed in detail in Appendix B. ISTC was previously housed in the Illinois Department of Natural Resources (IDNR), and is now a division of the Prairie Research Institute (PRI) at the University of Illinois, Urbana-Champaign (U of I). The name Mud to Parks originated when the first large project took fine-grained dredged material from Lower Peoria Lake to Chicago to provide soil for a lake-front park. In reality, the project dealt with many aspects of potential beneficial uses of dredged materials from a number of sources. This document is organized into sections dealing with various aspects of the project. The motivation for the project is covered first, followed by a description of early work to determine the ability of the dredged material to be readily transported, and whether it would develop an acceptable soil structure. This section also describes equipment demonstrations. Specific beneficial use projects are covered in the next section. Soil fertility and physical characteristics are then covered along with a discussion of greenhouse and field studies of sediment from the Peoria Lakes and Illinois water supply reservoirs. Information and data from the soil studies are provided in the appendices, which are largely excerpted from published material. The final section contains some of the authors' thoughts and speculations on potential uses of material dredged to restore depth in navigation channels, wildlife habitats, and reservoirs.

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