

An Evaluation of Graywater Reuse Utilizing a Constructed Wetland Treatment System

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Abstract. Increasing demand for conservation of water resources has prompted the notion that the separation of graywater (all wastewater not including toilet and kitchen sources) from sewer effluents through the use of dual-plumbed systems may enable graywater to be reused. Constructed wetland systems for conditioning combined wastewater effluents are widely used, and offer an efficient solution for onsite wastewater treatment of a variety of pollutants. However, limited long-term research has been conducted to determine the effectiveness of such systems specifically on graywater. This paper aims to determine the viability and efficiency of constructed wetlands for graywater treatment, and assess the water quality produced from such systems. The experimental method involves monitoring of specific water quality constituents under varying operating conditions in a prototype constructed graywater wetland. Preliminary findings show the wetland significantly reduces many graywater contaminants including pathogens, biochemical oxygen demands, solids, and nitrogen and phosphorus species.

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