Tile drain base-flow phosphorus removal using St. George Black

Water Quality Meeting

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Brief Background

Loading differs as hydrology changes – more total suspended solids and particulate P in high flow events

Treatment approach for tile effluent in storm vs base flow requires different methods/ goals

STUDY AIMS

Characterize potential for adsorptive filter to effectively treat only base (low) flow conditions

Focus on soluble reactive phosphorus (SRP) to address highly bioavailable P sources from tile drains

Based on outcomes, pair with "smart valve" or other approach to control high flow pollutant loading



St George Black

Locally sourced shale material (rock)

Contains: silicon dioxide, Al, Fe, Ca – known P adsorbers

Column studies indicate high rate of SRP removal (great than drinking water treatment residuals (DWTRs) and bauxite.

Ability to manage hydraulic conductivity by adjusting the coarseness of the grind (unlike DWTRs)



Study Site









Water pumped into system with low flow, high pressure solar pump

Project Tasks/ Timeline



Questions/ Comments

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