

Title: Pollutant Transport through a Natural Soil by Storm Water Infiltration

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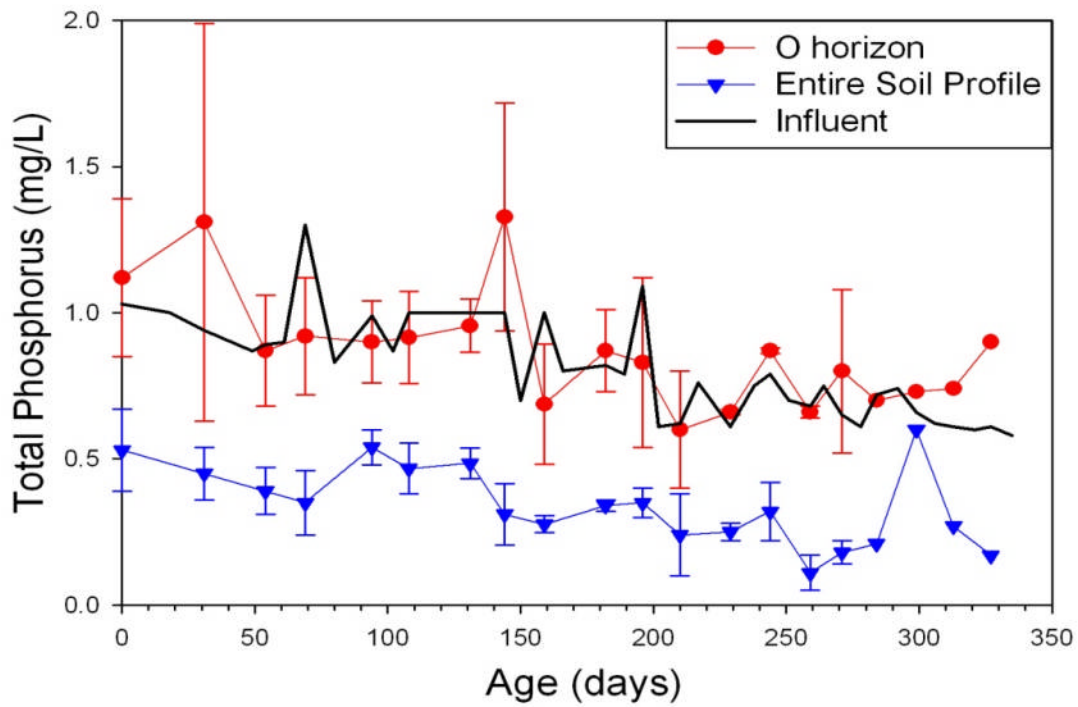
Abstract:

Urban sprawl has amplified surface stormwater runoff peak rates and volumes, increasing pollutant levels which add to the cost of drinking water treatment. Infiltration, the movement of water through soil, is gaining popularity as a method for reducing runoff and pollutant loads. The suitability of a soil for infiltration varies and research is required to provide guidance for stormwater managers.

Three- to fifteen-inch depths of two Pennsylvania soil types, a silt loam and loamy sand, were collected intact within 4-inch diameter PVC pipe. Twenty columns representing 4 different depths were collected for each soil type and infiltrated with 600 ml of storm water once a week. Influent and effluent water samples were collected and tested for various parameters.

Although the organic horizons had a neutral effect on phosphorus concentrations, the lower horizons of both soils displayed removal which suggests that mineral binding of phosphorus may be occurring. Nitrogen leaching from the organic horizons of both soils was flushed through the lower horizons. Both soils also released potassium from upper horizons which flushed through the loamy sand but removal was observed by the B-horizon of the silt loam. Effluent pH became increasingly acidic as soil depth increased.

Total Phosphorus (mg/L) - Loamy Sand Effluent



pH - Loamy Sand Effluent

