Guilford County
Innovative Stormwater Device Fact Sheet

Rainwater Harvesting

Description
Many people throughout the world depend on the collection of rainwater for their primary source of water. Fortunately, we have the valuable resources of groundwater and reservoirs to supply our needs. In recent drought years and because Guilford County is located at the headwaters of several river basins, our groundwater and municipal water supplies can become strained.

Some designers are considering collecting rainwater for stormwater management and re-use for non-potable purposes.

Purpose
The purpose of rainwater harvesting is to capture and store rainwater runoff for other uses, instead of the water exiting the site directly into a stream or through another runoff control device. The collection of rainwater can have various objectives of on-site use. From a water conservation perspective, collection can reduce water demands on the groundwater or reservoir supplies. Catchment systems can provide reuse of water on-site for cleaning, flushing toilets, irrigation, and fire protection. From a stormwater management perspective harvesting reduces the peak runoff, velocity, and reduces erosion. Under certain conditions a cost savings can be realized by collecting runoff.

Application
The use of rainwater harvesting for stormwater management is not a one size fit all application. Each site is specific to topography, soil types, slope, and other factors which can limit its use. Retrofitting a system to older sites may be cost-prohibitive. If a dual piping system is required for the reuse of water for other purposes, an experienced staff may be needed. Water should be filtered before re-use and any overflow, in the event the system is full, should go through an approved traditional treatment system (BMP). Other considerations are safety, stream conditions, land use, and longevity. Like all stormwater BMP's and water sources, for everything to work as intended, it is dependent on adequate rainfall.

Advantages
The advantages of using this system are that there is an increase of groundwater recharge when used in conjunction with irrigation or waste lines discharging to a septic system. With the increase of recharge, there is a like reduction of intake of water from the ground or reservoir. The collection will permit the settling of solids in the water. Runoff remains onsite, not affecting the surface waters or reservoirs.

Disadvantages
As with any untreated water, the collection of rainwater is subject to contamination, pollution, and toxins. Up-front installation costs, maintenance costs, and filter replacement may not be cost effective. There could be a disastrous.

Long Term impact
Rainwater harvesting represents a sustainable design. On the other hand, for any cistern with above ground storage aesthetics and safety concerns are an issue. Another issue that deserves consideration is the possible alteration of the hydrology of the site with potential impact on smaller local streams.

Suggested BUA/Stormwater requirements

- Plans must detail how water to be re-used
- System must have an overflow that drains through a BMP removing at least 35% TSS
- Discharge of re-used water must infiltrate into the ground or be routed through municipal sewer if used for flushing and site has public sewer.
- Additional BUA beyond the maximum limit is not allowed
- Rainwater harvesting will satisfy requirements for quantity and quality control for the area that drains to it, with proper design and if all of the above conditions are met
- A detailed maintenance plan must be submitted for review