



Highland Tank's stormwater detention and retention tanks are widely accepted as a means of stormwater management to reduce the developed peak flow and provide a means of flow reduction and treatment prior to discharge.

www.highlandtank.com

HARNESSING STORM WATER

Who would have thought years ago that storm water could be a municipality's biggest asset besides its potable water system? Over the last decade, rethinking how we manage water has been essential in contributing to sustainable storm water management policies and solutions.

Pollution from storm events poses the largest threat to quality and quantity problems to public health, surface water and the environment.

Sanitation infrastructures, in most urban areas, have not kept up with community growth and the commercial and industrial facilities they service.

Water and waste water projects have been shelved due to lack of funding and the economy. In these developed areas, impervious surfaces, pavement, and roofs prevent soil absorption which interferes with the natural hydrologic process of filtration and collection to our aquifers. Instead, storm water runs unimpeded into storm drains, sewer systems, and drainage areas causing flooding, erosion, SSO's/CSO's, etc.

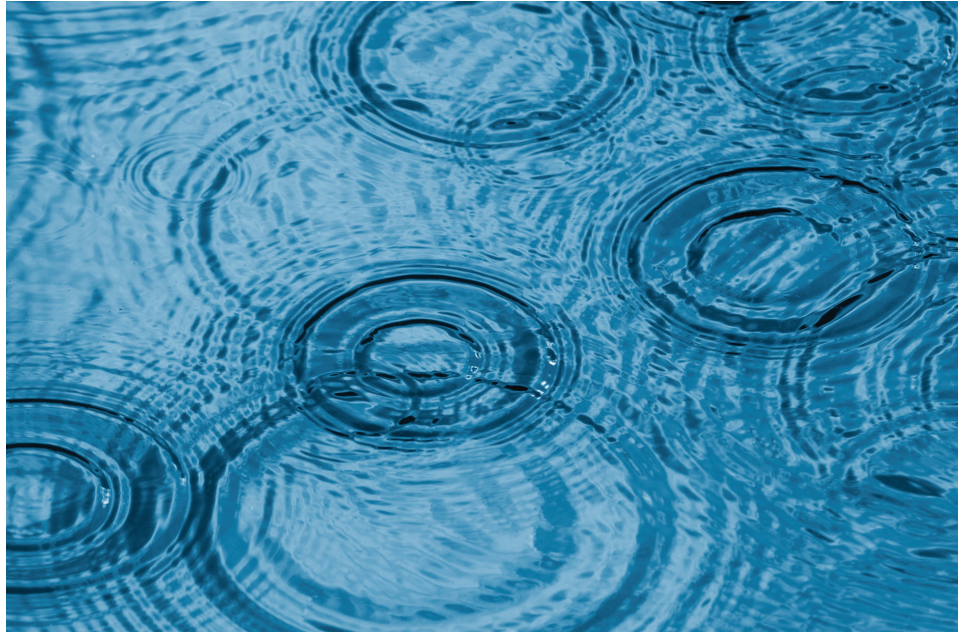
Ultimately the municipality is responsible for discharges and effluent requirements per the storm water permit.

Green building programs such as Leadership in Energy and Environmental Design (LEED™) and sustainable development programs such as LID (Low Impact Development) have gained traction and established a blue print for storm water management. Both LEED and LID create frameworks for protecting streams and waterways from degradation caused by unmitigated storm water runoff.

HOW DOES THIS AFFECT YOU?

As part of the Environmental Protection Agency (EPA) Phase 1 storm requirements, all states, counties, cities, etc. are responsible for developing solutions to control pollutants from runoff from industrial facilities to municipal separate storm sewer system (MS4). This is also covered under the National Pollutant Discharge Elimination System (NPDES). The problem is that the EPA and/or state agencies may not have the resources to adequately develop and implement programs which leaves the municipality in potential violation of the Clean Water Act. Even the most conservative and traditional design principles to meet storm water management requirements put a tremendous burden of operation and maintenance on the entities.

The introduction of “Green Technology” embraces the use of Best Management Practices in mitigating the negative impacts associated with urbanization. This new approach has introduced dynamic storm water management tools that mimic the natural hydrology of a site without the dependence on structural practices. Tools such as riparian buffers, green roofs, bio filtration swales, retention/detention systems and rain water harvesting address multiple objectives like water and energy conservation.



An article recently printed in the Tennessean highlighted the financial struggles faced by many municipalities around the country. The municipality in Nashville, TN faces backlogged storm water management needs totaling \$200 million dollars. The article outlines the steps and proposals needed to fund the Metro’s storm water related projects. Mayor Barry announced what she billed as a new “modernized and equitable” storm water fee structure. The increase would be the first of its kind since the Metro adopted the fee in 2009. The fee would target both residential and industrial/commercial/institutional facilities with large amounts of impervious surface. The move is to bring the fee structure of the fourth-largest municipal storm water system in the nation more in line with others facing similar shortfalls.

The chairman of the Davidson County Public Works committee, who is a proponent of the increase, said it best, “Investment in storm water infrastructure is necessary to protect our residents' property and possibly save lives in flood conditions,” Elrod said. “The new storm water fee structure, if passed, will be fairer and will allow us to fund critically needed projects throughout the city”. This article, in brief, clearly defines the tools needed to reduce runoff and improve water quality by introducing “Green Infrastructure”.

EFFECTIVE SOLUTIONS

Highland Tank provides solutions in technology that infiltrate, evapotranspire, capture, and reuse storm water to maintain or restore natural hydrologys. In its simplest form, the concept of storm water management can be broken down into three areas of impact:

- Quantity Control (flooding)
- Quality Control (Pollution)
- Stream Channel Protection (Erosion)

Highland Tank understands the principles of flow reduction, treatment, storage, and reuse as they relate to modern storm water management plans. The HT Solids Control Unit (SCU) is designed to protect the downstream storage components for storm/rainwater management systems. The HT-SCU technology removes sediment and other contaminants from parking lots, roof decks, and most hard surfaces. The HT-SCU is engineered for site specific removal applications to meet the water quality needs of the associated cistern storage system.

Key benefits of the HT-SCU are:

- 100% treatment, with no bypass function, during all types of rainfall events
- Treatment technology provides downstream protection and reduces maintenance costs
- Designed to remove a broad range of particles and organics
- Designed to remove a specific size particle when using both primary and secondary media

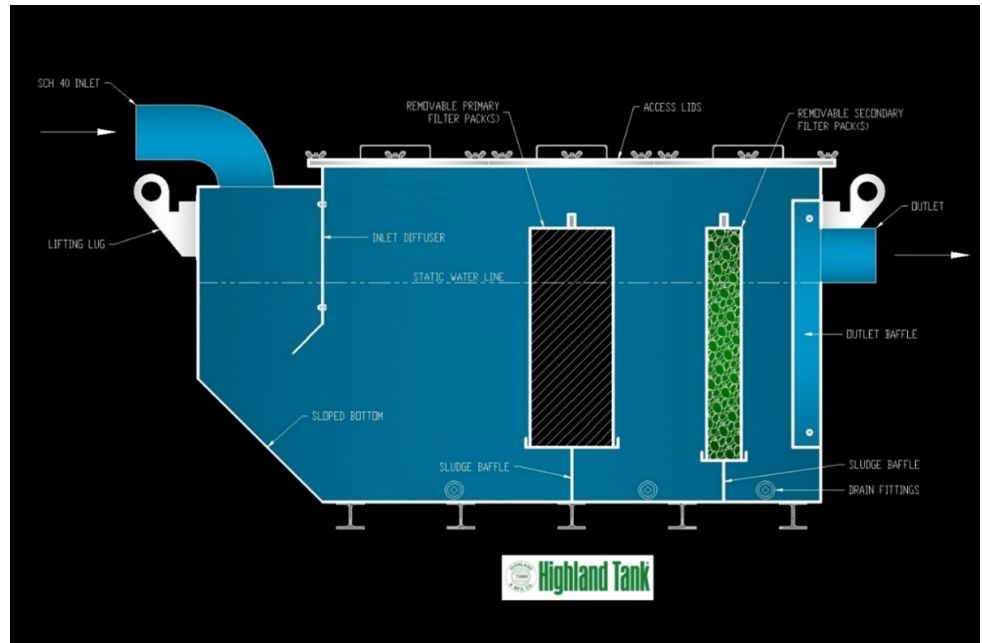


Figure 1: Highland Tank Solids Control Unit

- Minimal elevation between inlet and outlet minimizing head loss to near 0 psi
- Above/Below grade and/or integral to storm water retention/detention systems (see Figure 1)

Highland's storm water detention and retention (SDRT) protected steel tanks provide onsite storage to avoid hydraulic overload of the storm/sewer infrastructure. These storm tanks play a critical role in maintaining the hydrology of the sewer system while reducing the potential for flooding and, worse, sanitary sewer overflows (SSO's). Whether used to store and slowly release storm water to the sewer system (detention) or dispose of the storm event onsite (retention) through infiltration/recharge the SDRT provides a sustainable solution to storm water management.

Highland Tank's HighDRO SDRT's are constructed of high-strength carbon or stainless steel and protected with your choice of high-solids polyurethane, epoxy and other tough internal linings and external coatings.

One of the most dynamic storm water management tools Highland Tank has added to its tool box are Rainwater Harvesting Systems. Harvesting is a holistic two-prong approach to quantity and quality control. In operation, the storm water is diverted from the sewer system through the use of underground cisterns coupled with prefabricated water treatment packages that recycle the storm water on-site.

Rainwater recycling systems (also known as rainwater harvesting systems, see Figure 2.) can reduce the demand on the city's water supply, as runoff is captured, stored, and repurposed to irrigate planted areas, gardens or green roofs during periods of low rainfall. Rainwater can also be used in place of potable water for supplying water closets and urinals, cooling tower makeup, washing of sidewalks, streets, or buildings, and laundry systems.

Highland Tank's HighDRO®-Pure System is designed to collect, store, process and treat rainwater from a storm event for future reuse. It helps reduce storm water runoff and provides an alternative to using municipal water supplies.

With the "GREEN" movement, the use of retention/detention, SCU technology and rainwater harvesting has become more wide-spread to reduce the environmental impact of development and population growth, especially in municipalities with finite water resources. LEED architects, engineers and builders have long recognized Highland's protected steel water tanks for their strength, durability and functionality.



Figure 2: Rainwater Harvesting System skid

With the addition of our new HighDRO®-Pure systems, we are continuing our commitment to protect the environment and conserve our precious natural resources to benefit our world today and tomorrow.

Call 814-893-5701 today or visit us at www.highlandtank.com for more information.

Contact: Michael Gauthier
Email: mgauthier@highlandtank.com

