

## Improved Infrastructure Across the Owasco Lake Watershed

Persistent dry weather this summer caused dry stream beds, stressed vegetation, and a renewed appreciation from many watershed residents for the more typical rainfall patterns that exist within the Owasco Lake watershed. This year's infrequent (and largely inconsequential) rain showers seemed to arrive when plants and crops most needed a splash. Despite the dry conditions, the lack of rainfall resulted in minimal erosion, relative to years with more regular stormwater runoff events, and offered a much-needed reprieve for landscapes, infrastructure, and residents throughout the region. In contrast, during the three years prior to 2020, the Owasco Lake watershed withstood destructive, torrential rainfall events, which caused extensive damage, particularly to residents in the southern portion of the watershed. Over the last few years, collective action has been taken to gradually implement new and improved practices on a variety of landscapes and stormwater conduits to reduce the destructive impacts of heavy rainfall events.

Generally, fast moving stormwater has the energy to force severe destruction and chisel away vulnerable landscapes. Seasonal rainstorms can produce high stormwater flow conditions that carve new ravines in residential yards, wash out roadways, bulldoze soils from crop fields, and turn low-lying areas into small ponds, especially in the Owasco Flats. Stormwater frequently flushes pollutants and transports sediments to streams, creating unsightly sediment plumes, and deposition into the lake.

Despite the devastation that can result from stormwater, a silver lining appears; through

careful and timely observations, important revelations of landscape reactions can emerge from heavy rainfall events. A comprehensive understanding of the causes and effects of water flowing across a variety of landscapes, experiencing dynamic land uses, is paramount for local planning towards resilient and protective triage.

Planning activities, according to observations from recent storms, has led to widespread protection activities throughout the landscape of the Owasco Lake watershed. Collaborative funding and implementation efforts of local highway departments, the Owasco Watershed Lake Association, Soil and Water Conservation Districts, and many others, have propelled a shift from the conventional practice design of conveying water as quickly as possible off the landscape through the drainage network, to the adoption of practices that better retain, filter, and control stormwater velocities.

Recognition of a stable drainage infrastructure, and its correlation to environmental protection and economic benefits, is emerging among all 19 Owasco Lake watershed jurisdictions (15 towns, two villages, NYS DOT, and County agencies). Incorporation of rock armoring, vegetative filters, sediment retention basins, and aquatic passage improvements collectively demonstrate the proactive approach underway in each municipality of the watershed. Adequately taming intense flows of stormwater, conveyed along approximately 480 miles of roadway within the drainage basin, is a task that is neither small nor inexpensive.

The Tompkins County portion of the Owasco Lake watershed is the southern-most extent of the basin, encompassing the towns of Groton, Lansing, and Dryden. This nearly 70 square-mile area drains approximately one third of the total area of the Owasco Inlet sub watershed. When rainwater strikes the ground near the Hamlet of Peruville, it begins a journey of approximately 20 miles, descending approximately 300 feet in elevation to Owasco Lake. Consistent with many of the southern Owasco Lake sub watersheds, the Owasco Inlet sub watershed has endured damaging stormwater events. Nevertheless, managing high velocity flows around the headwaters has had a positive influence on downstream flooding, infrastructure protection, and the containment and transport of sediment.

During the summer and fall of 2020, the Tompkins County Highway Department and Towns of Groton and Dryden endeavored upon definitive and noteworthy efforts towards reducing the impacts of stormwater throughout their road ditch networks and infrastructure. New practices installed along

county roadways included stone armoring and velocity control dams, culvert aprons, as well as miles of hydroseeding along Pleasant



*Stone-line ditch, new hydroseeding, and culvert inlet stabilization on West Groton Road, Town of Lansing*

Valley, Town Line, Salt, and Locke Roads. According to their relatively small slice of the Owasco Inlet sub watershed, the Town of Dryden added stone velocity controls and hydroseeding in an unvegetated ditch along Hile School Road that drains into a wetland complex. The town of Groton spent thousands of dollars replacing a failing culvert on Walpole Road. An impressive concrete box structure was also replaced that included a comprehensive installation utilizing heavy stone armor, erosion control blankets, and new grass seeding along its sides to reduce erosion.

Tompkins County also placed water filtration socks, or sediment logs, in recently hydroseeded ditches. A late season joint project, involving the Tompkins County Soil and Water Conservation District and the

Owasco Lake Watershed Inspection and Protection Division, utilized wood chip stockpiles at the Cayuga County Parks and Trails office to assemble over 500 feet of filter socks. These socks were transported to the road ditch sites, and installed by staff to enhance efforts made by the various headwater jurisdictions to further reduce stormwater sediments and contaminants from reaching the Owasco Inlet.

This year's dry weather has offered an opportunity for Owasco Lake Watershed municipalities to recognize and address water conveyance infrastructure impacted by stormwater. Recent and critical improvement efforts are highly commendable. Unleashed stormwater events, beware! The Owasco Lake Watershed community is working collaboratively to prepare for, and adapt to, more dynamic and intense storm patterns.