

Capturing, Cleaning, Enlivening the Water— (A 2009 Stormwater Project)

By the 2000s, water quality was a growing concern and park property above the old stream (flowing in its drain pipe) and along the south hillside of West Park had become increasingly more saturated and difficult to use for recreation and to maintain. This may be attributable improved maintenance of sewer linings making them less porous to infiltration or to rising groundwater levels. Only a small amount of rain/snowmelt runoff in the watershed of the old stream was being captured in the ground before it could reach the park. This made for a lot of stormwater entering the park and eventually carried to the Huron River, the source of drinking water for Ann Arbor and further downstream Ypsilanti and beyond.

Keep in mind that the first few minutes of a rainstorm are crucial. Slowing down the flow of the water and giving plants a chance to absorb and clean it and the water a chance to filter through the ground can make a big difference in how healthy the water is when it enters the Huron River. Wetlands, bioswales, ponds, and rain gardens --along with trees and shrubs and most any plant-- help slow the runoff of rainwater and snow melt allowing plants to remove toxins from the water and allowing the water to become enlivened by taking on minerals from the ground. This makes for much healthier and higher quality water entering our drinking water system.

The city worked with the Office of the Washtenaw County Water Resources Commissioner --which has jurisdiction over Allen Creek-- to develop the stormwater management portion of the master plan for West Park. They decided to leave in place the 1920s drain pipe for the old West Park stream but open the land to hold more water flow in bioswales --shallow excavated areas filled with native vegetation-- roughly following the course of the old stream.

Only a [small portion of the stormwater of West Park's old stream was routed above ground](#) through the bioswales, the rest continuing to flow through the 1920s drain pipe. More "daylighting" of the stream would be problematic at this point because of very high E.coli counts in the rest of the network of storm sewers for Allen Creek (wildlife such as raccoons contribute to that) and because there could be flooding --in heavy rain or during snow and ice melts or repeated rains that soak the ground-- and either that water somehow gets into drain pipe before leaving West Park or the flood water gets stored in such large basins that it would change the use of the park. According to Harry Sheehan of the Water Resources Office, "If you're going to try to store water and daylight Allen Creek, it makes sense to do it in steps. You have to do it with projects that detain water throughout the watershed.... You can't just start at the downstream end."

In West Park [the bioswales widen into detention basins designed to catch stormwater](#). The deepest one --a pond-- is fed by a natural spring and was designed to hold up to three feet of water during heavy rains. It marks the spot where the two branches of the old stream joined together. Basins on the south side of the park were designed to have about two feet of water permanently, thus supporting wetland habitat for animals and plants. The bioswales and basins are surrounded by buffers of wetland native grasses and wildflowers. The bioswales in conjunction with their landscaping serve to keep water off the pathways. Parts of the pathways were also relocated to avoid flooding issues.

To improve the quality of the water flowing into West Park, eight large hydrodynamic separators --also called swirl concentrators-- were installed where the two branches of the old stream/drain enter the park at Seventh Street. The separators are underground concrete devices with a cylindrical chamber where incoming water is spun, swirling it so that heavy debris falls to the slower-moving center and oil and other debris that floats rises to the top, where it can be skimmed off. This process filters out a large amount of sediment, oil, grease, and other contaminants. If E.coli is present, the majority will be removed since it typically attaches to sediment.

It was estimated that with filtering by the bioswales and swirl concentrators, the new water management system as a whole could remove as much as 60% of phosphorus and 70% of E.coli from the water before it leaves the park. The water management system's ability to slow down and capture surface runoff water in the bioswales and pond has gained increasing importance as our area has come to experience more severe rain events of higher intensity and shorter duration. And the bioswales have come to life with a whole variety of wildlife!

To read more about this project and the West Park Master plan, read [The Stream](#).