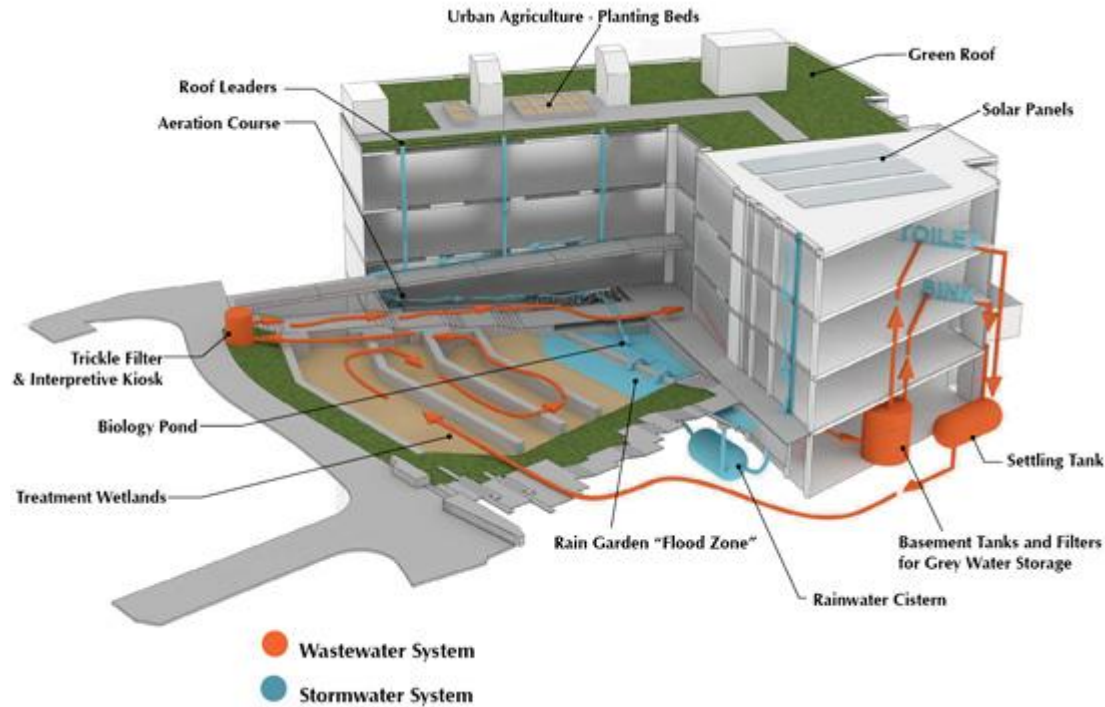


## The Wetland Machine of Sidwell



*(The wetland machine of Sidwell Friends School by Andropogon Associates, Kieran Timberlake Associates and [Natural Systems International](#). Image by Andropogon Associates.)*

Reading an ASLA [interview](#) of Jose Alminana, a principal at [Andropogon Associates](#), we were reminded that [Sidwell Friends School](#), the Quaker school of choice for the Obamas, the Clintons, the Gores, the Bidens, the Nixons — practically every member of Washington's politocracy, except for the Carters, of course — has in the courtyard of a recently renovated building an artificial wetland.

Not merely an eco-ornament, it's a machine that "manages all the wastewater generated by the building, as well as all the rain water that falls on the site."



*(View from top of the wetland terrace towards the new building extension. Photo by Andropogon Associates.)*

Typically, wastewater is drained away via a complex network of tunnels that requires vast financial resources just for its maintenance, an infrastructure that's undoubtedly deteriorating just as fast as tax revenues get siphoned off away from public works budgets to General Motors and Bank of America. Miles and miles away from its point of origin, the water then gets treated in an energy intensive process. But it still isn't entirely clean afterwards. Thus, when discharged, it still poses a risk to bodies of water, contributing in many instances to elevated bacterial count and eutrophication.

At Sidwell, wastewater is treated on-site, somewhat off-the-grid and using comparatively minimal infrastructure. The treatment cycle begins inside the building in a tank filled with anaerobic bacteria. Among other things, these bacteria help break down solids. The effluent is then pumped outside to a trickle filter before continuing on by gravity to a series of tiered wetlands. To lessen the health risk of contact with students and to mitigate any odor problems, water flows through beneath layers of pea gravel; there's no surface flow, in other words. This planting medium contains phytoremediating plants which, together with the microorganisms attached to their root hairs and to the gravel stones, extract contaminants from the water. After slowly trickling its way outside for about a couple of days or so, the water then re-enters the building and gets collected in storage tanks as greywater ready for reuse, for instance, to flush toilets.



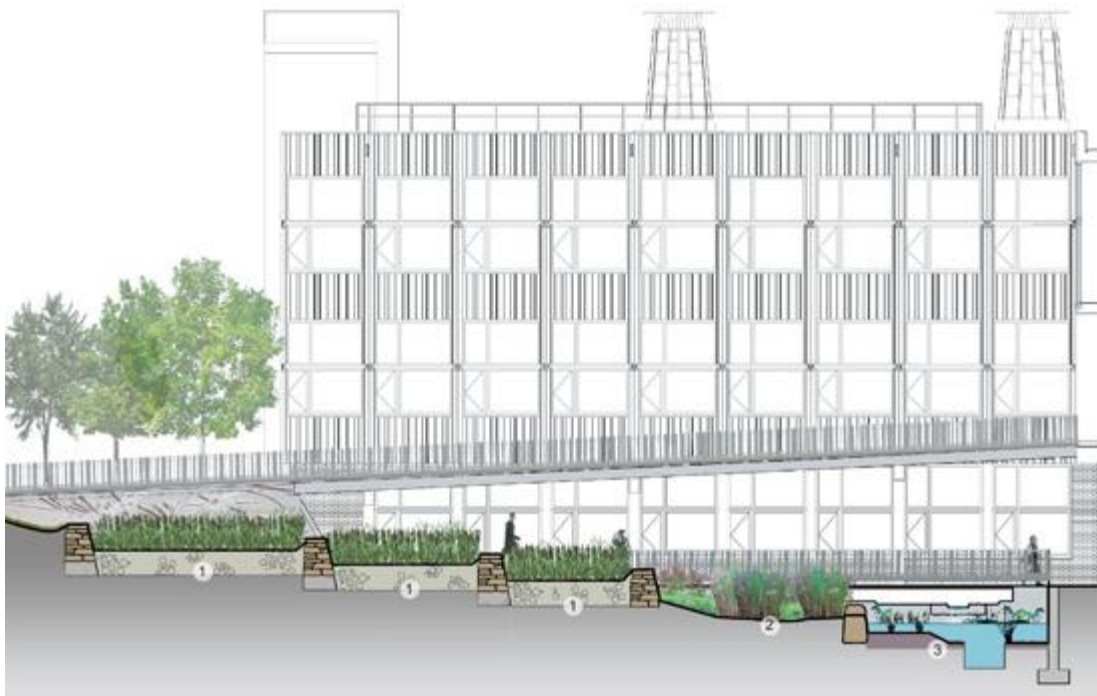
*(Site plan: 1. Existing Middle School; 2. Middle School addition with green roof; 3. Trickle filter with interpretive display; 4. Wetlands for wastewater treatment; 5. Rain garden; 6. Pond; 7. Outdoor classroom; 8. Butterfly meadow; 9. Woodland screen at neighborhood edge; 10. Playground. Image by Andropogon Associates.)*

Just as with wastewater, managing urban stormwater typically involves massive infrastructure to dispose runoffs as efficiently and as quickly as possible. In addition to being a drain on municipal coffers, such a method is known to increase the probability and the intensity of a flood event during major storms, endangering human life and property. Moreover, since stormwater isn't allowed to remain where it falls, (1) water doesn't have enough time to infiltrate the soil and seep into waiting, possibly depleted groundwater aquifers, and (2) what may have been clean at first contact with the surface undoubtedly will not remain so as it moves through sidewalks, roads, parking lots and sewers before going on to pollute rivers, lakes and other sources of our drinking water.



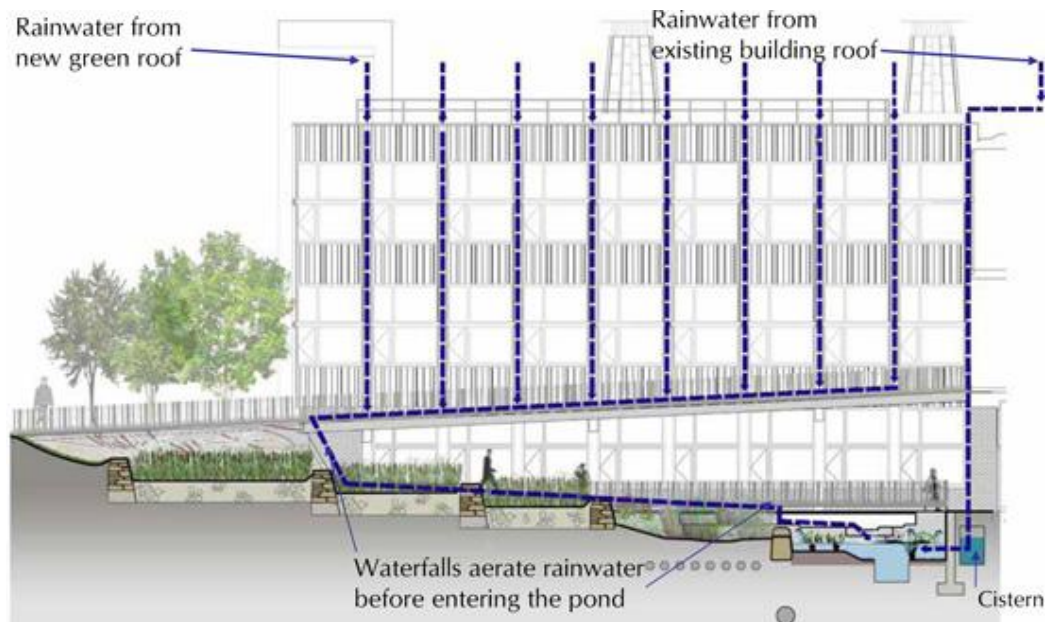
*(Two students on the border between the rain garden and the pond. Photo by Andropogon Associates.)*

At Sidwell, we get a hint of an alternative system for stormwater management: hyperlocal, lo-fi, modular (i.e., implementations at multiple sites would be needed to bring about an appreciable effect on urban hydrology), soft and comparatively cheap.



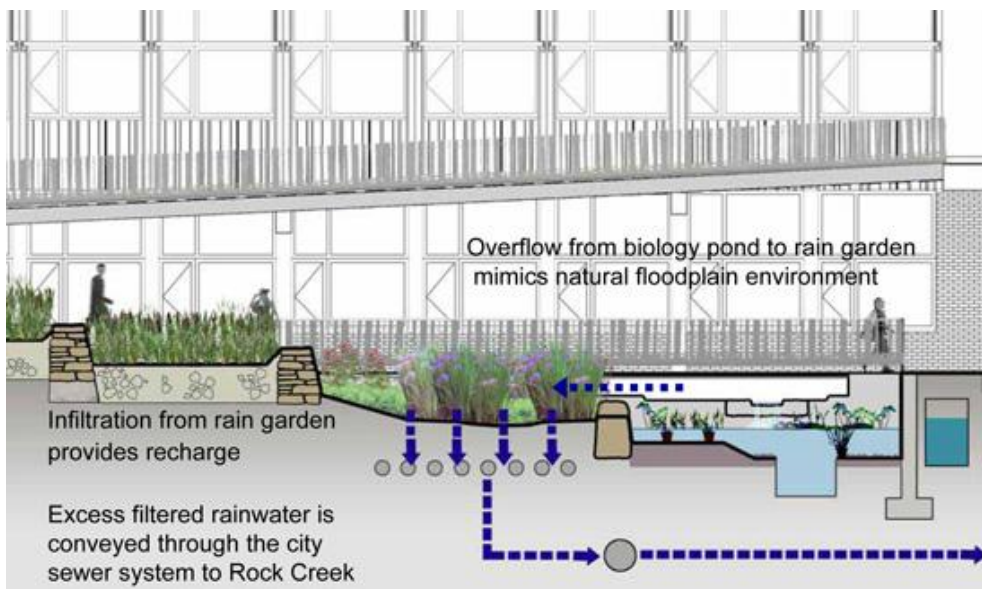
*(Section cut through the 1. tiered wetlands used for wastewater treatment; 2. rain garden; and 3. pond. Image by Andropogon Associates.)*

Runoff is directed to a rain garden and a permanent biology pond located downslope from the tiered wetlands used for wastewater treatment.



(Flow diagram of stormwater runoff. Image by Andropogon Associates.)

Some of the runoff gets in an underground cistern. During dry weather, this storage tank provides water to the pond. During heavy rains, excess water flows from the pond into the rain garden, simulating the hydrological dynamics of a floodplain environment. Water seeps through the soil and gets naturally filtered.



(Flow diagram of stormwater runoff from pond to rain garden. Image by Andropogon Associates.)

Andropogon describes this project as a “working landscape” but we might prefer calling it an “event landscape,” wherein natural processes are co-opted into a cybernetic amalgam of landscape, architecture, geology, biology and institutional pedagogy. Rather than in the inaccessible subterranean voids and in scientific abstractions, this eco-machine is made to perform out in the open for the edification of the elite who, in their dirty, smelly, real-world engagement with the landscape, will hopefully turn into great stewards of the earth.