GreenField Report™
January 2015

Bigger is Not Better

For years, Filtrexx has had vigorous discussions with erosion control designers over the height required for products installed to control sediment. These include Filtrexx® SiltSoxx™, which are a superior product to silt fence but considered an approved equal in most states. Ten years ago when SiltSoxx were still new on the market people did not realize that the design capacity of a SiltSoxx was actually much greater than a silt fence of equal or greater height. As the engineering community became educated through our research showing this design capacity, they began to adopt the Compost Filter Sock technology I invented and patented in 2001.

Recently the height of the sediment control device has once again become an issue for two particular applications—temporary controls for vertical building lots of short duration and slope interruption on large development tracts. We listened to the needs of builders and contractors and we have designed and tested a new product for applications where height and storage capacity are not as demanding—a 5-inch diameter SiltSoxx. The 5-inch SiltSoxx provides enough protection for either application but with some distinct advantages:

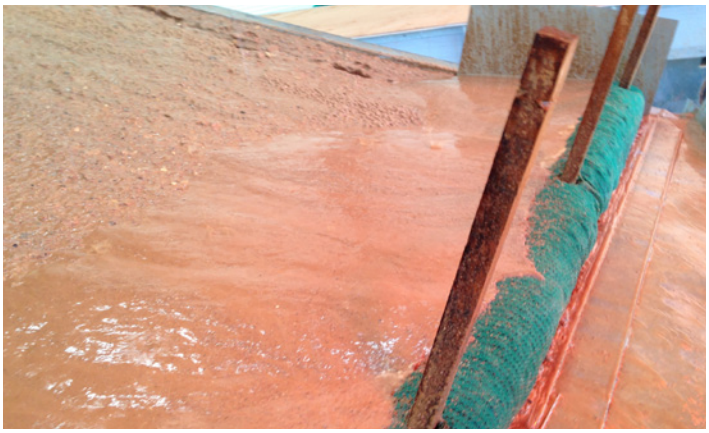
Vertical building

A typical vertical building lot may need from 100-400 linear feet of protection around its perimeter. These projects tend to last about 90-120 days, so the longevity of the "house wrap" device is not as important as it is during the overall perimeter control for site development, which can last 3-5 years. They are entirely different. If sidewalks have already been installed then installation of silt fence for vertical building using trenchers can be very tedious. Maintenance is time consuming, and disposal is expensive. The new 5-inch SiltSoxx works very well here. They will last far longer than 90 days and we can fit 400 feet on a pallet. Do not worry that they are not as high as our traditional 8- or 12-inch SiltSoxx—it is NOT needed. Testing for this product shows that on a relatively flat surface the product will adequately handle a 2-inch rain event and still provide roughly 95% sediment removal capacity. If the project lasts longer than 90 days, maintenance may be needed, just like any other BMP that fills up with sediment. Imagine using ONE of these sections for complete front and sides wrap around protection for a home being built. Simple. Effective. Efficient. Economical.

Slope interruption

When slope lengths reach longer than 50 feet, slope interruption devices provide a speed bump to slow down water and remove some of the energy it has accumulated by traveling downhill, thereby reducing soil erosion—this is the chief design function of a slope interruption device, not sediment control or storage capacity. Straw wattles or 8-inch SiltSoxx are usually the BMP of choice on slopes of 3:1 or 2:1.

Testing of the 5-inch SiltSoxx shows a 67% removal rate of sediment during a 2" rain. Again, height and storage are less important here than the frequency of the interruptions or speed bumps. The longer the slope the more speed bumps are needed. Our 5-inch SiltSoxx replaces traditional straw wattles, and provides more predictable results, due to adequate flow through AND longer life. Longevity is an issue with straw wattles—when they break apart due to degrading netting, protection is limited, water is channeled, and more erosion happens, so they need to be replaced often. A one-time installation of our 5-inch SiltSoxx may last as long as two straw wattles.



Scientific testing shows 5-inch SiltSoxx has a sediment removal rate of 95% during a 2-inch rainfall.

Convenience

The smaller SiltSoxx are lighter weight and easier to handle—and still work. Moreover, we can ship 400 feet on a pallet! So the shipping cost per foot of product used is actually reduced compared to not only straw wattles, but larger SiltSoxx as well. Sections are 200 feet long, offering seamless protection, less staking from overlap, and numerous other benefits. All in all, the product is one of the best values on the market.

The official research report will be released soon, and will be available at www.filtrexx.com/research-library/.

As always, Filtrexx continues to innovate, invent and solve problems in the field. Please be sure to pass your thoughtful comments to us for more considerations. Most of these ideas come from folks on the front lines asking for better ways to solve problems. Keep them coming!

– Rod Tyler
CEO, Filtrexx International

Project Profiles

Sustainable Repairs to a Kansas Highway Landscape

SEC President John Harsch, along with Kansas Department of Transportation (KDOT) Stormwater Compliance Engineer Jason Van Nice and Seeders, Inc. Vice President Aaron Snook, wrote an article about how they worked together to implement green infrastructure and low impact development practices. The article was published in the erosion control section of Land and Water's *September/October issue. Below is an excerpt of the article.*

Project Rewind

In early 2013, KDOT sat down to review their most recently completed construction projects and assess the status of vegetation establishment on each one. A few had areas in need of re-evaluation. Specifically, a project completed earlier that same year—reconstruction and expansion along U.S. Highways 169 and 166 near Coffeyville, Kansas—required follow-up to address erosion and problems with vegetation growth. Because of soil and climate conditions during the placement of seed during initial construction, much of what was planted didn't grow and a good portion had been taken over by weeds. The soil was also lacking in organic matter.

Project Underway

Jason Van Nice, KDOT stormwater compliance engineer, is the head of the construction stormwater program and was responsible for overseeing the follow-up near Coffeyville. The project aimed to provide corrective grading, stabilization and sediment control with goals to prompt vegetation growth and repair the erosion damage. "Because our permit required us to have 70 percent permanent vegetation in place, calculated steps needed to be taken to make drastic improvements to the top soil," said Van Nice.

KDOT, with the help of Wichita, Kansas-based erosion control contractor Seeders, Inc., soon began an emergency erosion control repair project on the nearly 300-acre stretch of land near Coffeyville.

Seeders, Inc. Vice President Aaron Snook knew that a vital component of the project was choosing the correct products. Because the site's soil was stripped of essential nutrients and was constantly eroding, Snook took the sustainable route and chose compost and filter socks to be the primary products used on the site. "By using these products, the project met the criteria for performance-based BMPs, low impact development, and green infrastructure; reduced pollutant loads including nutrients and sediment; and met our specific project goals," said Snook.

Filtrexx® SiltSoxx™, generically known as filter socks, are mesh tubes filled with wood chips and composted material that SEC is licensed to manufacture and distribute to customers. Once the compost was laid, SiltSoxx sourced from SEC were installed on top of the soil to control erosion and retain sediment on the site. SiltSoxx were also used as area inlet protection and ditch checks.

SEC has worked with Seeders, Inc. on a number of projects in the past three years and was excited to assist with such a leading-edge project.

"Often, compost and filter socks cost more up front," says Harsch. "However, since they are constructed to withstand the elements, they reduce maintenance, labor and disposal costs, so ultimately the payouts equal out."

Materials were sourced, installed and inspected, and grass began growing in approximately 10 days – an impressive feat given the initial state of the soil. "The success of the vegetation growth can be attributed to the selection of quality products, proper mowing practices and ample rainfall," said Consulting Engineer Jon Johnson of TranSystems, the inspector for the project.

Protect the Poles
York, PA

An unnamed tributary of Codorus Creek, which flows to the Susquehanna River, runs through the City of York, PA. On most days the tributary runs only a foot or so deep. As is common across many of our nation's tributaries, the creek swells to five feet or more after a decent rainfall, causing significant erosion to its banks. In fact, the banks had become so eroded that the utility poles there were at risk of falling into the creek. The local power company was faced with expensive prospect of having to move many poles in a one mile stretch in order to prevent this outcome. They decided that, before taking such drastic measures, they would try restoring and stabilizing the bank around one of the utility poles, and if it worked, they would replicate it.

General contractor Stewart & Tate was familiar with the use of compost filter sock for bank stabilization, through local Filtrexx® Certified℠ Installer River Valley Organics, and they wondered if the technology could be used to prevent the poles from falling. River Valley Landscapes President Doug Caldwell recommended Filtrexx GroSoxx®. GroSoxx are a vegetated "soft block™" system that provides immediate stabilization and vegetation establishment for permanent stabilization.

The two companies worked together to complete the project. Sandbags were used at the base, as required by Pennsylvania DEP, and then armored with rip rap. The bank was excavated to toe the GroSoxx into the bank. River Valley Organics blew in 8-inch GroSoxx seeded with perennial rye. The GroSoxx were reinforced with rip rap on the upstream side, and then the whole system was buffered with a reinforcing layer of rock. The whole project took six hours to install. It has been only six months since the installation and they are now fully vegetated. While the system is officially still under evaluation, all indications are that the GroSoxx solution has been effective.

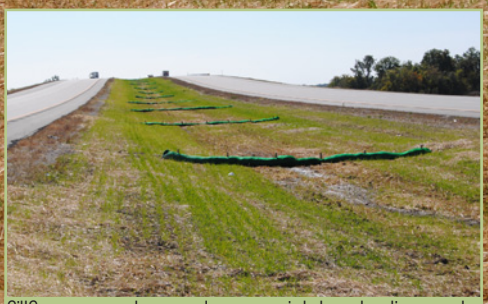
Environmental Stewardship
Annapolis, MD

Mount Olive United Methodist Church stands in an underserved community. The Church is participating in a new stormwater reduction program called RiverWise Congregations, a partnership of the Alliance for the Chesapeake Bay, Interfaith Partners for the Chesapeake, and the Anne Arundel County Watershed Stewards Academy.

The program is funded by Maryland's Chesapeake and Atlantic Coastal Bays Trust Fund who is providing not only funding but the expertise of Maryland's Department of Natural Resources.

Through this partnership, houses of worship commit to engage in significant, measurable sediment and nutrient reductions through the design, installation and maintenance of approved BMPs and changes in behaviors and

Pre-consumer-based compost was spread across the site's soil, which was first tilled one inch deep.

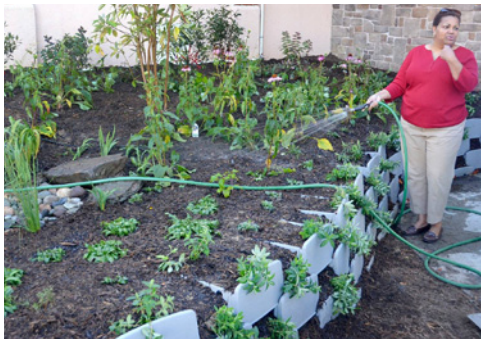


SiltSoxx were also used as area inlet protection and check dams.

practices that are part of the management of their lands and facilities.

The Church recently installed a rain garden near its main entrance using Filtrexx® EnviroBloxx™. The landscape designer on the project had used the Filtrexx® EarthBloxx™ system in the past and had intended to use it at the Church also. Filtrexx representative Jeff Opel suggested the new EnviroBloxx system, which has the same look as EarthBloxx, but with several additional attributes that made it more suitable for the project. Bay Ridge Lawn and Landscape installed the EnviroBloxx LivingWall™.

The wall is four courses high and approximately 25 feet long. "This wall is an ideal scenario for using EnviroBloxx," said Opel. "The lightweight components are easy to install, and save the Church money compared to commercial retaining walls. It also offers parishioners many learning opportunities in environmental stewardship."



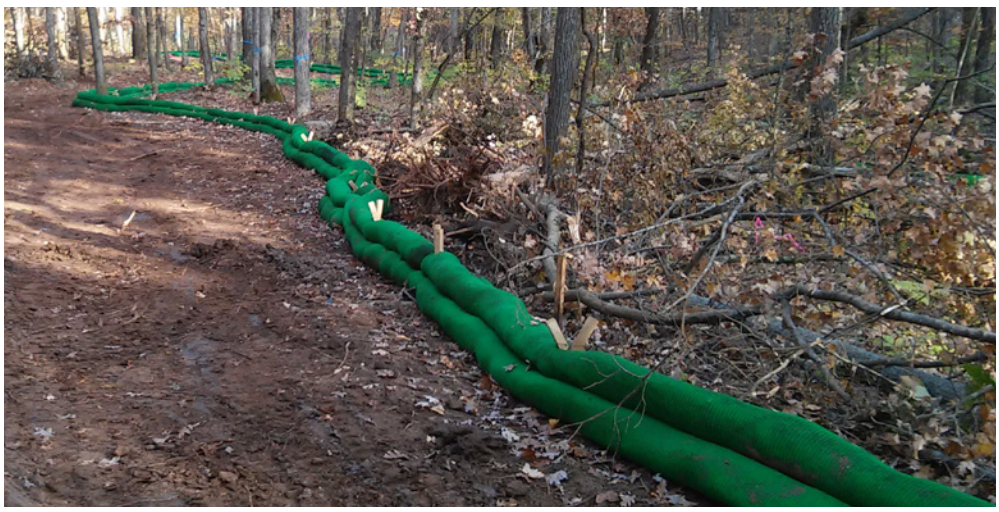
SiltSoxx Stack Up to Sediment

Farmington, MO

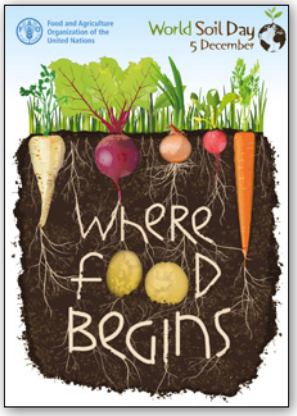
A mining company exploring for ore deposits on a mountain in Eastern Missouri was to conduct boring operations at 12 particular sites on the mountain. They were unsure how deep they would have to bore to find the deposits, which meant the amount of soil to be unearthed was also unknown. To mitigate risk the company wanted to install sufficient sediment control for the most extreme circumstances.

The mountain is extremely forested so an above ground BMP was required. Filtrexx SiltSoxx was selected for this site based on its documented capacity to filter sediment loads while passing the stormwater to nearby streams. In September Filtrexx Certified Installer Eco-Constructors (St. Louis) installed 8-inch and 12-inch SiltSoxx in a pyramid-stack formation to protect the streams that run through the mine area. The pyramid stack method is used to combine several smaller diameter SiltSoxx, to equal the design capacity of one larger diameter SiltSoxx.

Among the 12 boring sites, there were several that were concentrated on one particular face of the mountain, so extra protection was needed there. Using SiltSoxx Eco-Constructors installed an above ground detention pond down slope from the boring sites to avoid disruption to the rest of the hillside in the event of a big rain. In total approximately 8,000 feet of SiltSoxx were used on the site.



International Year of Soils



The UN has declared 2015 the International Year of Soils (IYS). The IYS aims to be a platform for raising awareness of the importance of soils for food security and essential ecosystem functions.

UN Secretary General Ban Ki-moon, in a message to the global community, stated that, "Without healthy soils, life on Earth would be unsustainable. Soils are the foundation of agriculture. They provide vital ecosystem services and the basis for food, feed, fuel, fibre and medical products important for human well-being.....In an era of water scarcity, soils are fundamental for its appropriate storage and distribution…. A healthy life is not possible without healthy soils."

This year, Filtrexx will redouble our efforts to support the Composting Industry in the United States as we also continue to invest our time and resources into research for our food future. We will help raise awareness of the importance of soil to human well-being.

One such endeavor is the support of the production of an upcoming film that we believe will be seminal in influencing the global conversation about our food future. *The Need to Grow* is a full length documentary from Earth Conscious Films focused on "regenerative and decentralized solutions to our broken, corrupt, and contaminated food system." The film makers show how GardenSoxx can be a part of that solution. Watch the previews at **http://vimeo.com/earthconsciousfilms/.**

Visit us at these 2015 Conferences

Jan. 19-21, International LID Conference- Houston, TX
Jan. 20-23, USCC Conference- Austin, TX; Booth 607
Feb. 15-18, IECA Conference- Portland, OR; Booth 342

Approved by MoDOT, ODOT

Compost filter socks have been allowed by the Missouri DOT for years. However, without a detailed specification there have been several compost filter sock brands on the ground with sub-standard performance. Recently MoDOT revised the specification to focus on performance, adding specification for material characteristics, mesh aperture, and filter media, among others. Contractors can use compost filter sock for perimeter protection and as an acceptable alternative to geotextile and other silt fence applications described in EPG 806.8.6.4.4 Silt Fence. Compost filter socks are also an acceptable alternative to ditch checks as described in EPG 806.8.6.4.3 Ditch Checks.

OK by ODOT

The Oklahoma DOT has approved the use of Filtrexx Compost Filter Sock on erodible areas during construction, including SiltSoxx for perimeter sediment control, InletSoxx™ for sediment control around an inlet, and DitchChexx™ for sediment control across a ditch.

The State requires that SiltSoxx and DitchChexx shall be a minimum of 12 inches in diameter, but the DOT stated in a letter to Filtrexx that, "Even though our standards show a minimum of 12", [we] will allow the 8" diameter InletSoxx to be used around drainage inlets."

New GardenSoxx® Video

High-performance urban farming

In our April 2014 issue of GreenField Report, we reported on Alegría Fresh, an innovative demonstration farm in California that utilizes high-efficiency farming systems to produce and distribute superior locally-grown salad greens and vegetables. The Alegría Soxx Farm is 1/5-acre dedicated to cultivation using GardenSoxx. That humble plot contains 7,800 linear feet of GardenSoxx. Compared to traditional growing systems, the farm uses 70% less water and 50% less fertilizer, has two and a half times faster growth, with superior nutrient density—and over land that nobody is using.

The Soxx Farm is being used to teach urban teens what can be done on a small piece of land—to build farms in the city, create jobs, and provide food security. The story is the focus of the new GardenSoxx promotional video produced by Earth Conscious Films.

"That's the paradigm shift that you're going to see happening," says Craig Kolodge, Western Regional Representative for Filtrexx.

Watch the video! You too will be inspired about the role GardenSoxx plays in our food future. Visit: **http://vimeo.com/113275490/.**

Upcoming Webinars

Webinars are from 11:00 a.m.–Noon EST/EDT and worth 1.0 PDH.

February 4: LID/Post-construction Water Quality Treatment
February 5: Living Walls
February 11: Sediment Control
March 5: Living Walls
March 11: EnviroSoxx® for Targeted Pollutant Removal
April 08: LEED/Green Building

For information and registration, visit www.filtrexx.com/webinars

FILTREXX INTERNATIONAL | 35481 GRAFTON EASTERN ROAD, GRAFTON, OH 44044 | 440-926-2607 | WWW.FILTREXX.COM

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