



## Pidcock Creek Streambank Stabilization Project

The Bucks County Conservation District recently completed a streambank stabilization project along the Curls Run, a tributary to the Pidcock Creek. The project included installing approximately 200 feet of stacked boulders to protect an outside turn of the channel that was eroding dangerously close to a septic field. Also included in the project were two root wad installations for habitat improvement, and a “j” hook structure to protect an eroding bank.

Special thanks are given to our partners in this project: Pidcock Creek Watershed Association, who will be completing a riparian planting on site October 21, 2007 and who meets each month at the Bowman’s Hill Wildflower Preserve. Also, thanks to the PACD Technical Assistance Grant program for providing the site survey and project designs. Thank you to Taylor GeoServices, Inc. for completing the construction phase of this project, and to the H & K Group for providing and delivering the root wads.

If you have any questions regarding this project, please feel free to contact Gretchen Schatschneider, Bucks County Conservation District, 215-345-7577x106.

— Gretchen  
Schatschneider  
Bucks County CD



*Root wad replacement deflect flows and enhances fish habitat.*



*Stacked boulders protect a turn in the channel.*

## New Manual on Urban Stormwater Retrofits is now available

Most design engineers realize that there are a tremendous amount of stormwater management basins that have not been maintained or repaired. The old stormwater management infrastructure is a ticking time bomb for failure. In the last year, four older stormwater basins in Chester County were identified as failed, some causing damage to downstream landowners, others not meeting their design purpose. Unfortunately, we can expect to see more in the future.

The Center for Watershed Protection has released a manual titled Urban Stormwater Retrofit Practices. The manual was published in June 2007 under a contract with USEPA. The manual focuses on SWM retrofit practices that capture and treat stormwater runoff before it is delivered to the stream. The manual describes both off site and on site retrofit techniques that can be used to remove pollutants, minimize channel erosion and help restore stream hydrology.

Guidance on choosing the best locations in a sub-watershed for retrofitting is provided in a series of 13 profile sheets. The manual then presents a method to assess retrofit potentials at a sub-watershed level including methods to conduct a retrofit inventory, assess candidate sites, screen for priority projects and evaluate their expected cumulative benefits.

The manual concludes by offering tips on retrofit design, permitting, construction, and maintenance. The Manual can be downloaded free at <http://www.cwp.org>

Dan Greig  
Chester County CD

## How I learned to love structural BMP's

**Chapter 6** of the Pennsylvania Best Management Practices Manual deals with structural BMP's, of which there are twenty-one. As a design engineer, it would be a good idea to bookmark this chapter, as it will be one of the more heavily referenced chapters in the BMP manual that you will use.

The twenty-one structural BMP's in Chapter 6 are grouped according to their primary stormwater functions, namely:

**Volume/Peak Rate Reduction by Infiltration BMP's**

**Volume/Peak Rate Reduction**

**Runoff Quality/Peak Rate BMP's**

**Restoration BMP's**

**Other BMP's**

Stormwater management is not easy to accommodate in hindsight. The simplest and most effective way to manage stormwater in your project is to incorporate it within the initial plan design. Are you planning on developing infiltration BMP's? If the answer is yes, then the two list of protocols found in **Appendix C** should be followed to minimize the failure of infiltration BMP's. These protocols offer guidance in dealing with site conditions and constraints, design considerations, proper construction specifications in BMP design, and most importantly, soil testing and analysis.

*I've done my homework, completed my testing, and the site infiltrates. Now what?*

It's time to choose some BMP's that will fit the constraints of your site, keeping in mind not to build on all the good soil. If the project calls for parking areas, playgrounds, walking paths, sidewalks, tennis courts, and other similar uses, you will want to explore **Pervious paving with an infiltration bed**. Properly installed and maintained, pervious pavement has a significant lifespan. Most systems will function for twenty years or more! Pervious pavement also works well in Northern climates such as Pennsylvania's. It has less of a tendency to form black ice and often requires less plowing. For more information on pervious paving, please refer to BMP 6.4.1 in the BMP manual.

Is there a way to infiltrate and somehow mimic the natural ecosystem? Absolutely. This is accomplished through **Bioretention/ rain gardens**. This BMP has been a success in many urban and suburban settings. Bioretention can be worked into a site with a high degree of flexibility and can balance seamlessly with other structural BMP's such as porous asphalt parking lots. Bioretention is a great way to reduce runoff volume, filter pollutants, recharge groundwater, reduce stormwater temperature impacts, provide habitat, and just make your project site aesthetically pleasing. For more information on bioretention/rain gardens, please refer to BMP 6.4.5 in the BMP manual.

An increasingly popular way to store and infiltrate rooftop runoff in residential and commercial settings is the **Dry Well/ Seepage Pit**. Dry Wells capture runoff at the source thereby dramatically reducing the increased volume of stormwater produced by roofs of structures. After this initial storage, Dry Wells will then discharge the stored runoff by way of infiltration into the surrounding soils. Because Dry Wells typically provide stormwater management for a limited roof area, care should be taken not to

hydraulically overload the Dry Well. Because of the popularity of this BMP, the market has been hit with a variety of prefabricated versions of the Dry Well. Check it out! For more information on Dry Wells/ Seepage Pits, please refer to BMP 6.4.6 in the BMP manual.

*The soils and topography of my project site don't lend themselves to infiltration. Help!*

Need to be rescued? Go up to the roof the vegetated roof, that is. **Vegetated Roofs or Green Roofs** are an innovative way to improve water quality and reduce volume. Designing a project in an urban setting? Vegetated roof covers can satisfy many stormwater regulations as well as save valuable space. The many different applications and assemblies of vegetated roofs can provide substantial environmental benefits, and achieve aesthetic and architectural objectives. For more information on Vegetated Roofs, as well as maintenance issues and cost issues, please refer to BMP 6.5.1 in the BMP manual.

Another fantastic BMP for use in, but certainly not limited to, urban areas is **Runoff Capture & Reuse**. Let's go back to the future! Cisterns, rain barrels, and vertical storage have been around for centuries to help folks deal with stormwater. This BMP is most effective when designed to meet a specific water need for reuse. The beauty of these systems is that they reduce potable water needs for uses such as irrigation, fire protection, and reuse for greywater needs such as flushing toilets, all the while reducing stormwater discharge. Why pay the man for a resource we all have access to? For more information on Runoff Capture and Reuse, please refer to BMP 6.5.2 in the BMP manual.

*I'd like to improve the existing soil of my project site. How do I do that?*

**Soil amendment & Restoration**, that's how! Soil amendment & Restoration involves the improvement of disturbed soils and low organic soils by restoring soil porosity and/or adding in a soil amendment such as compost. This is a great way to reestablish the soil's capacity to infiltrate and remove pollutants. Soil amendment works best with the tilling of the existing soil. Here in Chester County we have a tremendous access to Spent Mushroom Compost as a soil amendment. Use it! It is readily available and cost effective, not to mention it reduces waste and reuses natural resources. Compost improves soil structure, supplies a slow release of nutrients to plants, increases the soil's ability to hold water, and improves infiltration while reducing runoff. Bottom line – your plantings and turf grass will proliferate more quickly, making your project site more aesthetically pleasing. For more information on Soil Amendment and Restoration, please refer to BMP 6.7.3 in the BMP manual. Please visit the **American Mushroom Institute website: [americanmushroom.org/compost](http://americanmushroom.org/compost)** for further reading on spent mushroom compost.

Well, there it is. A quick overview of some of the different BMP's discussed in Chapter 6 of the Stormwater BMP manual. Chapter 6 provides a wealth of information. Tap into it. Be creative. The community you're designing in will appreciate it for years to come.

*Jim Demchak  
Chester County CD*

## Fees for Services

With the recent downturn in the economy and development, the Chester County Conservation District has receive several requests from permit applicants and designers for “waiver or reduced” review fees. However, many of the applicants and designers have misconceptions about the fees. Hopefully this article can clarify many of the issues.

In Chester County:

Fees are approved by the Conservation District Board of Directors. Fees are for District Services. Reviews are covered within the fee structure. Fees also cover costs to the District for:

- Education
- Meetings
- Review
- Administration
- Inspections
- Termination of the Project (NOT)

The District collects the Service Fee upfront prior to the review process. CCCD has not found a way to “bill” for each site inspection which list violations of Chapter 102. I think we would have a hard time collecting with an inspection fee. Please also understand that the only fee we receive is the upfront fee. The project construction may last several years after the permit is issued. The Conservation District will have costs throughout the period of construction.

The other “fee” that has become an issue is the one charged after a second review, which must be included with the 3<sup>rd</sup> submittal. The purpose of this fee is to ensure that the designer submit quality plans with standard comments included. There are many cases where projects submittals are substandard even after the District has a pre-application meeting. In Chester County this fee is equal to the initial fee submitted for the project. If an applicant sees a comment letter from the District that includes a substantial number of concerns, he or she should be addressing that issue with their paid designer as to why the plans were deficient in the first place. Other conservation districts have a similar fee. Some charge 50% of the initial fee with the second review. Another 50% is charged if there is a need for a third review.

Understand that each conservation district receives the same amount of funding in the E/S and Post Construction Stormwater Program from PADEP. It makes no difference if a district has 2 people or 6 people working in these programs. There is no additional funding whether the CD has 1000 active construction sites or 20. The funding of approximately \$21,000 that Chester County Conservation District receives from the PADEP does not even cover the cost of employing a single resource conservationist. Fees are the only way to cover costs and provide district services in a timely fashion.

Chester County Conservation District is in the process of reviewing its fee schedule. Changes may or may not include a fee increase. A committee of four, consisting of representatives from Administrative Staff, Technical staff, the District Board Chairman and an Associate Director who represents the Building Community. The recommendation from the committee is expected by late November or early December.

Dan Greig  
Chester County CD



I took this photo at a site in East Fallowfield. Note the stamp on the curb. The material going into the inlet is from a concrete washout. The weather was dry as a bone, which makes this even more moronic. Enjoy.

Jim Demchak  
Chester County CD



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For Information Contact:  
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## Texas Eastern Expansion Project

Anyone driving through Doylestown this summer probably noticed a flurry of construction activity in the areas surrounding the Doylestown Shopping Center. It may have appeared that a new on-ramp was being constructed on the 611 by-pass, but what was actually going on was a replacement project of an existing gas line by Texas Eastern (Spectra Energy).

This project involved replacing the 20' old line, which was installed in 1943, with a new 36" line. The replaced line covered 10.3 miles in Bucks County, disturbing approximately 250 acres. The replacement project affected Doylestown, Buckingham and Solebury townships. The purpose for the expansion is to feed an increasing need for natural gas in New Jersey.

The NPDES permit for the project outlined the procedures for implementing the erosion control plan. The intent of the plan was to provide erosion controls during and after the construction process with the intent of preserving the integrity of environmentally sensitive areas. Steep slopes, wetlands, streams were all encountered in this project. Aside from the usual erosion controls of silt fencing and construction entrances, timbered mats were used for heavy equipment in wetland areas and diversions were placed across steep slopes to diminish slope length. With only one or two rain events, the project progressed in an ordered, expeditious manner. Permanent stabilization was achieved at the beginning of the project in Doylestown as the line progressed eastward towards Solebury.

The professionalism, attention to landowners concerns and safety measures that were encountered during this project were extremely gratifying.

*Lisa Ishimuro  
Bucks County CD*



*Dennis Newcomer of Spectra Engery answers questions during a video tape of an educator tour sponsored by the Bucks County Conservation District.*



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## Continuing to Learn

Recently, along with several staff members from BCCD, I attended the annual Chapter 102/105 training held in State College. I have to admit that I wasn't sure what to expect as I am somewhat of a "newbie" when it comes to the myriad of district programs, and I am not intimately involved in the Chapter 102/105 programming.

I am the educator on staff, and as such believe that you can never get enough education on any topic. The old saying that states "the more you know, the farther you'll go" has been uttered again and again by those in my profession (generally to middle school and high school students who are complaining "why do I need to know this stuff anyway").

As I sat in the meetings, however, I realized how far I really needed to go to understand all the rules, regulations, acronyms, forms (pre-application and application), fees, meetings (precons and inspections) etc. that are involved in the job of the technical people who work in the office and in the field. I certainly have a better understanding of what my technical co-workers are up against when they visit construction sites and receive and review new plans that arrive at our office in a steady stream.

And even though I realize I still have much to learn, I can relate to the desire of feeling that a job was well done at the end of the day and unfortunately to that sinking feeling when all your efforts appear to be for naught. Many times I've heard a student lament "you gave me an F" when in fact I had nothing to do with the F, since, of course, the student earned that grade all on his own.

So to all of you reading this now, conservation district staff and those in any profession, remember the mantra of educators everywhere — you can only set the table; you can not make others eat. Continue to set the very best table that you can. Remember that our soil, water and natural resources are the main course!

*Mary Ellen Noonan  
Bucks County CD*

## Another BMP in the Tool Box

A BMP that has been available for several years now was demonstrated at the Annual PADEP/Conservation District Meeting. Filtrex Silt Soxs<sup>sm</sup> is a neat product. Unfortunately, this product has only seen limited use in Southeastern Pennsylvania.

The Soxs consist of a sausage like tube filled with special mulch medium. The socks are available in several diameters.



To use this BMP for a submittal, the silt fence slope limitations are acceptable. The Soxs are installed on the contour and can function as a silt fence replacement and or as filter berms. Soxs utilize their weight and stakes for reinforcement. Soxs can also be installed in forested areas with little or no disturbance. The mulch medium is blown into the Soxs. Once the project is completed, the Soxs are cut open and the material spread in place as mulch.

Soxs are a trademarked product. The Filtrex Company only allows qualified trained contractors to install the product. There are several companies in South East Pennsylvania who are certified. Certified contractors are located in Chester County, Lehigh/Northampton, and Dauphin.

Filtrex Soxs have a higher upfront cost than silt fence. However, the ease of installation with no trenching, minimum blow outs, and less maintenance can make up the difference in cost quickly. Sites such as retrofits or infill projects should consider the use of Soxs.

The company has other similar products for different applications. The Chester County Conservation District staff has accepted the sediment/silt control and utilization for storm sewer inlet control. The District will consider other uses and BMP products from Filtrex and other companies on a site specific basis as an equivalent practice with proper documentation and justification. CCCD does not want to be "stuck in the mud" in accepting new technology. For more information on Filtrex go to [www.filtrex.com](http://www.filtrex.com)

*Dan Greig  
Chester County CD*

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## Teaching teachers about conservation

Bucks County Conservation District took part in the 11<sup>th</sup> Annual Watershed Teacher Workshop sponsored by the Partnership for the Delaware Estuary this year. On August 7<sup>th</sup> sixteen area teachers toured the Spectra Energy construction site to learn about BMP's. The training session consisted in a video showcasing safely and environmental aspects of the gas pipeline installation and a personalized tour of several location along the 10 mile installation in Bucks County. Special thanks go out to E&S technician Lisa Ishimuro who arranged the tour and the Dennis Newcomer of Spectra Energy who acted as our morning tour guide.

In the afternoon the group shifted gears and visited a home site owned by Dr. Jim Diamond, Dean of Delaware Valley College. Dr Diamond's property was extremely interesting to the group due to its unique location. It is located not only on a Dirt and Gravel Road but also along the Rapp Creek, one of Bucks County's exceptional value watersheds. Dr. Diamond shared with us his conservation plan originally put into place in the 1960's and recently updated by NRCS. His informative, anecdotal style charmed the group and teachers became students for one afternoon.

BCCD hopes to participate and expand its presence in next year's Delaware Estuary Teacher Workshop.

*Gretchen Schatschneider  
Bucks County CD*



*Dr. Jim Diamond explains to the teachers the conservation measures on his property.*



*The teacher workshop included a visit to a Texas Eastern construction site where a natural gas pipeline is being replaced.*



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## Student gives positive feedback Conservation Leadership School

“I felt that by attending Conservation Leadership school, I have learned a lot about the environment and myself. I left with a new knowledge of the world around me and new friends.”

This was how **Katie Fox**, a student from William Tennent High School in Warminster, PA, described her experience as a scholarship recipient this summer.

Not only did Katie learn interview and public speaking techniques, but she was able to participate in a scientific study of Lake Perez, learn about green roofs, and work on a case study involving land use.

Each year Bucks County Conservation District sponsors high school students at this one-week residential camp. This scholarship is awarded in memory of Harold Haldeman, a former BCCD Director whose career spanned many years and involved work with Plumstead Township Park and Recreation Board, Bucks County Agricultural Preservation Program, 4-H and Boy Scouts, to name a few. This year a second student, **Cassie Dee** from the Upper Bucks Vo-tech School, also attended.

For more information about the school or the scholarship, please visit our website at [www.bucksccd.org](http://www.bucksccd.org).

*Gretchen Schatschneider  
Bucks County CD*

## New staff member at Delaware County CD

Michelle Ferri is Delaware County’s new Conservation Technician. She is a 2007 graduate of the University of Scranton where she received her Bachelor of Science degree in environmental science. Her curriculum included courses in biology and chemistry, as well as some background in environmental laws, regulations, and economics. One of her activities at school was being a member of the Environmentally Concerned for Others (ECOS) club, where they organized cleanups and took part in other events to bring environmental awareness to the campus. During her college career Michelle interned in the Office of State and Watershed Partnerships at EPA’s Region III office in Philadelphia, where she also received training in wetland delineation and plant identification. Michelle is a big baseball fan and loves to watch and cheer on the Phillies.



*Ed Magargee  
Delaware Co. CD*



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