

# Conservation & You

A publication of the  
Southeast Pennsylvania  
Association of Conservation Districts

Bucks  
Chester  
Delaware  
Montgomery



Fall 2010

## PaDEP provides Conservation Districts with Chapter 102 Changes

On September 30, 2010 the South East Regional office of the Department of Environmental Protection held training for DEP and Conservation District staff on the changes found in the upcoming revised Chapter 102 regulations. Discussions included Chapter 102 Changes and Highlights, the Erosion Control BMP Manual, Post Construction Stormwater Management (PCSM) Requirements, Riparian Buffer Requirements, and Agriculture and Chapter 102.

The new Chapter 102 regulation becomes effective on November 19, 2010. Final versions of the new regulation will be made available on the PA Code website, [www.pacode.com](http://www.pacode.com).

The PA DEP has stated that training will be made available to the professional public in the month of November. As dates are made available, your County Conservation District will publish the training opportunity.

*Gretchen Schatschneider  
Bucks County CD*



## Mulch Covers for Rain Gardens

Rain Gardens have been gaining in popularity since the PA Stormwater BMP Manual was created. Both designers and developers are starting to see the aesthetic benefit and flexibility of these stormwater management facilities.

A rain garden or bioretention facility is a shallow depression that utilizes specially selected vegetation and amended soil mixture to treat runoff both through infiltration as well as evapotranspiration.

The recent popularity of these systems has also created a learning curve both in the design and construction phase. One issue that seems to be coming up is the proposed mulch covers. While the planting medium is usually a loamy soil that is typically amended with an organic compost, the surface area is always stabilized with a shredded wood or leaf mulch.

The PA Stormwater BMP Manual recommends utilizing 2-3" of mulch with leaf compost or shredded wood mulch. If using shredded wood mulch, one thing to consider is the finer, the better. Standard landscape grade hardwood mulch does not seem to hold up in most of the systems. Sometimes the planting schedule calls for a specialized seed mixture that cannot germinate through the wood mulch. It has also been noted that a rain garden that specifies a domed riser usually gets clogged with the first decent rain event due to the wood mulch floating. These two scenarios immediately lead to initial failure of the systems.

Here are a few tips for successful application of surface components of rain gardens.

- When specifying a mulch cover, consider both the planting schedule and the structural components (i.e.- domed risers, inlets).
- If shredded mulch is specified, try to locate a "triple" shredded mulch or finely shredded, well-decomposed mulch.
- Utilize a variety of plants to maximize establishment. Trees, deep-rooted shrubs and grasses, as well as seeding mixtures carefully planned will guarantee success.
- Adjust to field conditions. Any naturalized or landscape stormwater BMP may need tweaking in the field. Specifying some of the above steps and calling out specific notes on the plan can help, but in the end it is up to all parties involved (i.e.- design engineer, contractor, municipal representative, etc) to communicate throughout the process.

As always, Conservation District staff should be involved in every process, including the establishment and stabilization of rain gardens. When all parties are involved, the chances of establishing a successful rain garden are much higher and should continue the trend of the this stormwater BMP's growing popularity.

*Jordan Perry, Chester County CD*

## When can you expect your NPDES permit?

Did you ever receive your erosion and sediment control letter of adequacy for a project and then wonder when the NPDES Permit would be issued? Many times the NPDES Permit would not be seen for quite some time after receiving the adequate letter. Some Districts were following the Department of Environmental Protection's (DEP) guidance and holding up issuance of permits until Act 537 approval was received. Others were issuing permits without this approval but not allowing earth disturbance to commence. The reason Districts were taking this action has to do with page 10 of the Notice of Intent (NOI) it states that states that Act 537-plan approval is required prior to NPDES permit issuance. However, the PAG-02, General NPDES Permit, Part C, Condition 13, states, "earth disturbance may not commence until all related Act 537 Sewage Facilities Planning Approvals have been obtained." Because the conditions of the permit take precedence over the application, all Districts in the Southeast region are now issuing permits even without the 537 approvals, but not authorizing earth disturbance to commence. You will need to contact your local District to see if they will schedule a pre-construction meeting prior to 537 approvals. The NOI will be updated in the future to reflect this so the permit and its application are consistent. The NOI will also be modified to reflect the changes in the revised Chapter 102 regulations that take effect in mid- November.

Another reason for permit processing delays was the previously required municipal stormwater consistency letters. DEP has recently said these letters will no longer be considered a condition of permit issuance because such letters are not listed in the regulations. Therefore, we will not be holding up permit issuance or earth disturbance for these consistency letters from the local municipality. However, this does not exempt anyone from obtaining appropriate municipal approvals and permits prior to construction.

Please remember that even if you have your NPDES Permit in hand, it does not mean that you have an automatic ticket to begin earthwork. If earthwork does commence without 537 approval, it will be considered a violation of your permit, and appropriate action will be taken by the District and DEP. As always, the District should be contacted before any project begins.

*Michelle Ferri, Delaware County C.D.*

## Pump up the Volume! Dance! Chapter 6.4 - Volume Reduction Structural BMPs through Infiltration

Satisfaction of Control Guideline 1 involves addressing the differences in rate, water quality, and volume for improvements on a construction site. Chapter 6 of the Pennsylvania Stormwater Best Management Practices Manual (2006) focuses on structural BMPs, and for the sake of this article, specifically section 6.4, which centers around volume reduction BMPs through infiltration.

Whether a meadow is converted to a grass field or a forest to a strip mall, there will typically be an increase in the amount of runoff produced by the improvements. This difference is the responsibility of the applicant and design engineer to incorporate into the development plans to ensure that impacts from this extra volume is minimized by permanently removing that volume.

Whenever a structural BMP is proposed, there are certain key design elements that should be included in the plans. These key elements are significant to the proper function of the BMPs.

For example, a swale with grass does not make a vegetated swale BMP. The vegetated swale BMP has key elements not typical of a normal grassed swale. A conveyance swale cannot be considered a BMP if properly installed check dams aren't included or the slopes exceed 6%. Volume calculations, which are included with each BMP, can't be calculated for a vegetated swale without the use of check dams. The several acceptable variations chosen should be consistent with the BMP manual.

Whenever a particular BMP is specified, everything needed on the plans and in the narrative is included in Chapter 6 within the section for that BMP. This includes: variations, applications, design considerations, construction, specifications, and maintenance schedule. Absence of these items may require more information.

All infiltrating BMPs have one common key element: an infiltrating substrate. If soil/infiltration testing has not been done properly or has been estimated, the whole basis for structural infiltration BMP design goes out the window. Facilities should be designed to accommodate the infiltration rate, not the other way around. If the seasonally high water table or depth to bedrock hasn't been determined to be at least 2 feet below the bed bottom, it won't work for very long, if at all.

So, when planning to use structural infiltration BMPs for volume reduction, the BMP manual is more than a handy aid to obtain an NPDES permit. You can't specify the whole without also including all the parts. Being familiar with the options and what they entail, and applying them appropriately will go a long way in getting a plan approved and implementing a plan that works.

*Benjamin Drover, Montgomery County CD*



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## Storm Water Management Workshops conducted for Delaware County Homeowners

The Delaware County Conservation District recently partnered with the Pennsylvania Resources Council to conduct a series of four "Healing the Watershed" storm water management workshop for Delaware County homeowners. The workshops were designed to educate residents on various storm water management practices (including but not limited to rain barrels and rain gardens) that can be implemented around the home to conserve water, reduce storm water runoff and improve water quality.

The Pennsylvania Department of Environmental Protection's Environmental Education Grants Program provided funding for the project. Established by the Pennsylvania Environmental Education Act of 1993, the program allows school districts, private schools, nonprofit groups and county conservation districts to apply for funding to develop new or expand current environmental education programming.

Workshops were conducted during Spring 2010 at Pennsylvania Resources Council in Newtown Square (March 9<sup>th</sup>), Brookhaven Borough Municipal Building (April 12<sup>th</sup>), Watkins Senior Center in Upper Darby (May 3<sup>rd</sup>) and Springfield Township Municipal Building (June 7<sup>th</sup>). A total of 121 Delaware County residents attended the workshops.

Brian J. Vadino  
Delaware County CD

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## To Concede to Seed Again

"Seventy percent uniform perennial vegetative cover..." that's what they are looking for. Permanent stabilization is the Holy Grail sought by those looking to complete a job, close a permit, and be on their merry way to follow the sunset into yet another job. Sounds pretty easy, doesn't it?

Well, not always. The ability to grow grass is dependent upon many variables, including the time of year, the types and chemistries of soils, and the seed used. This article focuses on the latter.

Erosion and sediment control plans include stabilization specifications for temporary and permanent stabilization. This includes types of seed and rates of application. Seeding specifications should also include "Pure Live Seed." Pure live seed (PLS) is a term that describes the quality of seed. Quality of seed is crucial in determining rates of application. Rates cannot be specified without first determining the quality of the seed to be used. The PLS of a seed is found on the tag included with the seed purchased.

That is PLS? PLS is a combination of seed purity and seed germination. For example, if a Kentucky Bluegrass seed mix has purity of 85%, then 85% of that seed is Kentucky Bluegrass, and 15% is other miscellaneous seed, sometimes undesirable, such as weeds. Germination is the percentage of seed that is healthy and will actually germinate. Likewise, if 10 lbs. of seed with 90% germination is applied, only 9 lbs. of that mix will germinate. A seed mix with 45% germination will require 20 lbs. of seed to get the same amount of success.

How does purity and germination relate to rates? To calculate the PLS, pure seed percentage is multiplied by germination percentage, and the product is divided by 100. For example: A seed mix with 80% purity and 70% germination will be calculated as  $(80\% \times 70\%) / 100 = \text{a PLS of } 56$ . To determine rates, 100 is divided by the  $\text{PLS} - 100/56 = 1.79$ . Therefore, 1.79 lbs. of seed with a PLS of 56 will have to be applied for every pound specified on the plans. If the plan calls for 40 lbs./per acre of a seed mix, and the PLS is 56, then almost 72 pounds of seed will be needed to adequately stabilize that acre.

Similarly a seed with a PLS of 84 will only need 48 lbs. of seed to adequately stabilize that same area.

How does this affect the developer's cost? Several ways, actually. Say the two seed examples noted above are compared. The seed mix with a PLS of 56 costs \$1/lb. and a seed with the PLS of 84 costs \$1.30/lb. The poorer quality seed will cost \$72 to stabilize the same area that \$63 worth of the better quality seed will stabilize. Other areas of cost effectiveness include faster, more thorough germination, which will lessen the time burden of E&S controls and the time needed for continuous maintenance.

So when questions are asked like: Why isn't the grass growing? Where are all these weeds coming from? Why do I have to continually reseed? One of the first places to look for insight to these questions can be found on a little tag on the sack of seeds.

For more detailed information on this topic, the Penn State College of Agricultural Sciences publication "Erosion Control & Conservation Plantings on Noncropland" should be utilized.

Benjamin Drover  
Montgomery County CD

## Flood Insurance Rate Map Modernization

On July 30, 2010 the Federal Emergency Management Agency (FEMA) sent out a packet of materials for the Montgomery County communities that included new Flood Insurance Rate Map (FIRM) panels and a new Flood Insurance Study (FIS).

The three activities that each community must undertake during the upcoming months that will ensure both continued participation in the NFIP and a high quality FIRM are:

- review the preliminary FIRM and suggest corrections or comments as soon as possible. If serious scientific or technical issues with the preliminary FIRM arise, a formal appeal should be submitted during the regulatory 90-day appeal period.
- reach out to those citizens affected by the changes on the FIRM, and inform them of the potential flood insurance implications.
- adopt a new or amended floodplain ordinance that meets the NFIP minimum requirements or face possible suspension from the NFIP.

Meeting Dates with FEMA and Locations to discuss Digital Flood Insurance Rate Maps (DFIRMs), Flood Insurance Study (FIS), and the National Flood Insurance Program (NFIP):

**Tuesday, October 19**, 3-5 PM and 6-8 PM, Temple Ambler Campus, Learning Center Auditorium, 580 Meetinghouse Road, Ambler, Pennsylvania 19002. **These meetings will focus on the revisions to the FIRM with the Pennypack and Sandy Run watersheds.**

**Wednesday, October 20**, 3-5 PM and 6-8 PM, Plymouth Township Building Auditorium, 700 Belvoir Road, Plymouth Meeting, Pennsylvania 19462.

**Wednesday, October 27**, 3-5 PM and 6-8 PM, Upper Pottsgrove Township Building, Board Room, 1409 Farmington Avenue, Pottstown, Pennsylvania 19464.

It is recommended by FEMA, that in addition to your community CEO, you consider sending your municipal manager, solicitor, GIS staff, floodplain administrator, engineers, public outreach specialist and planners. FEMA will discuss frequently asked questions during these meetings, as they are working sessions for local officials. Each meeting will also involve representatives from FEMA, FEMA's Mapping Partner, the Commonwealth of Pennsylvania, and county officials.

Useful websites:

Federal Emergency Management <http://www.fema.gov/>

National Flood Insurance Program Website <http://www.floodsmart.gov/floodsmart/>

RAMPP - Risk Assessment, Mapping and Planning Partners <http://rampp-team.com/pa.htm>

If you have any questions regarding this matter, please contact Kristina Henderson, Program Specialist, Montgomery County Conservation District, 143 Level Road, Colledgeville, PA 19426-3313, (610)489-4506x25.

*Kristina Henderson  
Montgomery County CD*



**Robert W. Blye, Jr.**  
*Vice President*

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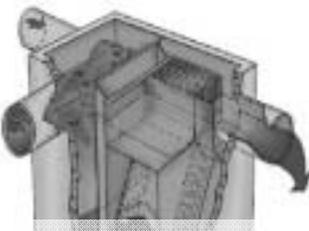
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## Hand Removal and Public Education to Control the Spread of Water Chestnut

Across Bucks County, efforts were underway throughout June to address the spread of the aquatic invasive plant, water chestnut (*Trapa natans*). On June 2, Nockamixon State Park hosted a volunteer meet and greet to encourage local residents to support control efforts to address the water chestnut infestation that was documented in Lake Nockamixon late last year. PA DCNR, Bucks County Conservation District and Perkiomen Watershed Conservancy staff presented to a group of area residents on the general characteristics, biology and control options to address a growing population of water chestnut around the county.

On June 3 and 16, two 'pulling parties' were hosted at Lake Nockamixon. Volunteers removed each plant by hand from canoes and kayaks. The infestation is currently localized at the Three Mile Run segment of Lake Nockamixon and volunteers were so thorough that by June 16<sup>th</sup> only one dozen plants were found and retrieved from the current known limit of the infestation.

Unfortunately, water chestnut coverage is more extensive at two county-owned impoundments where the plant has been identified – Lake Towhee in Haycock Township and Bradford Lake in Warrington Township. At the approximately 50-acre Lake Towhee, community volunteers along with staff from Pennsylvania Department of Environmental Protection and Bucks County Conservation District conducted a hand removal event on June 28. Teams in kayaks and canoes split up to address different sections of the lake while others remained on land to assist boaters with unloading and to haul the plant material to a pre-approved composting site. Thanks to the efforts of these volunteers, roughly 90% of the water chestnut was removed from the lower 20 acres of the roughly 50-acre impoundment. Everyone was extremely gratified to see the results of their efforts; one local resident summarized this sentiment by describing the day as "...kayaking with a purpose."

The surface of the 22-acre Bradford Lake is approximately 80 percent covered and new findings of the plant have been recently reported in the vicinity. Bucks County Conservation District staff are currently working with the Bucks County Parks and Recreation



Volunteers remove invasive water chestnut from Lake Nockamixon.

Department, and consulting with PA DCNR and PA DEP to investigate options and funding for chemical or mechanical control to mitigate the plant's spread in this area.

Local news outlets including newspapers *The Bucks County Intelligencer*, the *Bucks County Herald* and television news outlets at WTFX Fox 29, ABC 6 and WFMZ-TV Channel 69 have provided excellent coverage to warn residents about the impacts of the plant and methods of dispersal. The media's support has been instrumental in mobilizing a solid volunteer base and educating the general public on issues surrounding aquatic invasive species.

To learn more about water chestnut, visit:  
<http://www.pserie.psu.edu/seagrant/ais/watershed/chestnut.htm>

Meghan Rogalus, Bucks County CD



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## Watershed Workshop for Teachers Highlights Stormwater Best Management Practices

What can an individual do to reduce pollution in our rivers and streams? Teachers attending this year's Watershed Workshop, sponsored by the Bucks County Conservation District (BCCD), Partnership for the Delaware Estuary and Brandywine Creek State Park, found out they could do plenty.

On July 15 and 16 of this week-long workshop, teachers toured several Doylestown area locations to learn about innovative stormwater best management practices. Stormwater runoff is responsible for up to 70% of the pollution found in rivers and streams. Teachers had a first-hand look at some of these "best management practices," which reduce stormwater pollution.

The first stop was to a residential property in Doylestown where a rainwater cistern installed under the driveway holds up to 1500 gallons of rain water runoff from the roof that otherwise would make its way into a local waterway via storm drains. The cistern, was the brain child of Phil Cacossa and in spite of the extended drought of late, the Cacossas have had plenty of water to keep the garden from wilting under the oppressive heat.

Next was a visit with Linda Shanahan of Barefoot Gardens, who is also keeping stormwater out of our waterways and helping recharge the groundwater on her community supported farm. By carving out several small pond areas between the garden plots and the sloping former sod farm, water pools instead of running off and slowly infiltrates, recharging precious groundwater, rather than racing downhill over the tightly thatched sod and into the creek. An added benefit of this method of stormwater management is the abundant wildlife, especially hungry frogs, which help keep the insect population down on the farm. Future plans call for the installation of a warm season grass swale which will help infiltrate even more stormwater.

Funded by the National Fish and Wildlife Foundation's Delaware Estuary Watershed Grant Program, volunteers of the Bucks County Chapter of Trout Unlimited proudly showed off their handiwork to the teachers along the banks of the Watson Creek in Buckingham. Members of this conservation group spent many hours this past season planting 1000 trees in an effort to reforest a section of this headwater creek. Trees, which shade the stream, keep the water temperatures low and the oxygen levels high and provide great habitat for fish, especially the naturalized Brown Trout found in the creek. Trees also help to filter out any pollutants, slow down the flow of water, and reduce erosion and sediment buildup along streams, keeping our water cleaner.

A visit to the newly installed rain garden on the campus of Delaware Valley College (DVC) inspired many of the teachers who had visions of planting a rain garden, albeit a smaller one than the garden professionally installed at DVC, on their school grounds. Rain gardens are an easy way for anyone to cut down on stormwater runoff and a great hands-on learning project for school students.

Construction of the Route 202 parkway provided teachers with insight into the responsibilities of the Conservation District. Jake Borden, one of the District's Erosion and Sediment Control Technicians, provided information on how the proper installations of best management practice at construction sites protect our water resources. Erosion control devices keep soil on site preventing it



from reaching our creeks and streams where it would cause damage to water quality and wildlife habitat. Jake described the several different controls in place along the construction route including those required to manage sensitive stream crossing areas.

A stop at the Doylestown Commerce Center on Main Street provided a comparison between regular asphalt pavement and the new porous or pervious pavement. Rainwater soaks right into the pavement thereby keeping rainwater on site allowing it to infiltrate back into the groundwater right where it fell.

A highlight of the tour for many teachers was the Quakertown Swamp. This unique ecosystem owned in part by Heritage Conservancy and Richland Township is home to many unique plants and animals. Karen Williamson of Heritage Conservancy led the teachers through the property describing the unique characteristics associated with wetlands. Teachers learned how to identify a wetland and also that wetlands are one of the most productive ecosystems in the world.

Lastly, teachers marveled at just how much there is to know about stormwater and nutrient management by looking at Tussock Sedge Farm, a grass-based beef farm in Perkasio. Rachel Onuska, BCCD agricultural technician, explained how Tussock Sedge has worked to keep stormwater clean by installing gutters, downspouts and cement curbs around the barnyard, and how the farm filters nutrient-rich runoff from the barnyard via a runoff collection system that gets pumped to a grass filter strip. These simple structures coupled with adequate pasture management help keep pollutants from our creeks and streams.

*Mary Ellen Noonan, Bucks County CD*

## Chester County CD recognizes Westminster Place at Parkesburg with Environmental Excellence Award

The Westminster Place at Parkesburg, Parkesburg Borough, is the recipient of the Chester County CD's Environmental Excellence Award for 2010.

Housing Development Corporation and KMS Design Group, LLC, along with their team of planners, landscape architects, engineers, architects, were recognized for implementation of outstanding erosion, sediment control and stormwater management best management practices that will ensure water quality.

The Westminster at Parkesburg was a 3.28 acre industrial site that was remediated under the Department of Environmental Protection ACT 2 Program. Today it is an excellent example of urban redevelopment that resulted in a four-story mixed residential and retail use facility.

According to Cynthia Fuhrer, Community Planning and Development Manager for Housing Development Corporation (HDC), the Westminster Place project was developed as a cooperative effort of HDC and Presbyterian Senior Living of Dillsburg, Pennsylvania to provide seventy-two spacious and fully equipped apartments for moderate- to low-income persons 55 years of age and older. Financing was provided by the Chester County Commissioners through the Chester County Department of Community Development, the Department of Economic and Community Development, Rural LISC, the Federal Home Loan Bank of Pittsburgh through PNC Bank, and low-income housing tax credit equity provided by Enterprise Community Partners.

KMS Design Group of Phoenixville was chosen to lead the site design team. Along with a team of architects, engineers and the construction management team, KMS worked with Parkesburg Borough to plan the project.

"The design team faced many challenges in developing the site to the meet not only the borough's requirements, but also the "Green Communities" standards as required by the clients," said Adam Supplee of KMS Design Group. As a "Brownfield Site," among the challenges addressed during the planning process were reclaiming the contaminated site of a defunct foundry, addressing stormwater issues, providing parking and public access to a neighboring park while developing a vibrant, community-friendly housing project for the County's aging low-income population.

The letter of notification from Christian Strohmaier, Conservation District Manager, noted the District was most impressed by the use of creative and innovative stormwater management techniques, which included: "Rain Gardens" in the ornamental landscape to collect rainwater from parking lots and the building roof, allowing it to soak into the soil, sub-surface stone drainage beds located under the parking lot to capture and release water slowly that allows water to soak into the soil, and vegetated swales to absorb and clean water as it moves along to reduce surface water flow and erosion.



*Left to right: Christian Strohmaier, Manager, Chester County Conservation District; Cynthia Fuhrer, Housing Development Corporation; Tom Brosius, Chairman of the Board, Chester County Conservation District; Richard Ross, Housing Development Corporation; Greg Bishop, Arthur Funk & Sons*

"Each of these techniques reduces the amount of water that has to be handled by pipes and streams, reducing the potential for flooding and related damage to low lying properties," added Supplee. In addition, the site was designed to be nearly free of lawn which requires weekly maintenance and pollution.

The design team included KMS Design Group, LLC, Landscape Architects and Planners; Architectural Concepts, LLP, Architects; Barry Isett and Associates, Inc., Electrical, Mechanical and Structural Engineers; and The Major Group, Inc., Civil Engineers. Arthur Funk and Sons was the construction manager and general contractor.

Greg Bishop, project manager for Arthur Funk and Sons, Construction

Management, was cited for his role in maintaining communication with the Conservation District and promptly responding to and addressing any of the Chapter 102 regulatory issues. The letter stated, "The site was an exemplary model for all construction sites as a job well done."

Westminster Place at Parkesburg was developed and managed by Housing Development Corporation. Founded in 1971, HDC is a not-for-profit company dedicated to providing quality affordable rental housing for low-income people and senior citizens throughout Pennsylvania. HDC is the largest provider of affordable rental housing in south-central Pennsylvania and has developed and currently manages more than 2,300 rental housing units in seven counties.

The project is owned by Presbyterian Senior Living, a not-for-profit organization, providing retirement and senior care services for more than 80 years. Headquartered in Dillsburg, Pennsylvania, They and their affiliates provide services to more than 5,400 seniors in 23 locations in the mid-Atlantic region of Pennsylvania, Maryland, Ohio and Delaware.

*Gaye Lynn Criswell, Chester County CD*

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