Conservation & You

A publication of the Southeast Pennsylvania Association of Conservation Districts

Bucks, Chester, Delaware, & Montgomery Counties

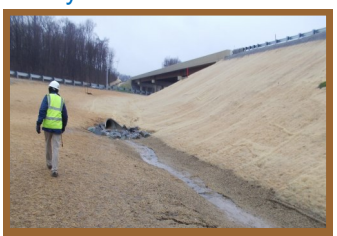
Fall 2015

E&S for Sites That are Less Than 1 Acre

By Kevin Boyle, Delaware County Conservation District

Over the course of the summer there have been a fair amount of smaller sites that have been inspected by Conservation Districts due to complaints. In most cases, Erosion & sedimentation controls (E&S) are sorely lacking. E&S measures should always be utilized, even in cases when neither a plan nor NPDES permit is required.

Simple steps, like the installation of 18 inch silt fence or 12 inch silt sock below disturbance on 2% or less slope can be implemented for up to 150 feet. Rock construction entrances should be utilized when construction traffic will be entering/exiting the site. Construction entrances are created by placing geotextile fabric and then a layer of R-4 stone. Always ensure that clean stone is replaced as sedimentation begins to clog previously placed stone.



An Erosion Control Blanket in Chester County

Stabilization is another effective weapon to help combat erosion on your site. Seed along with mulch applied at a rate of 3 tons per acre to dormant or finished areas can alleviate excess erosion and minimize sediment pollution events. For steeper slopes, erosion control matting should be installed. To properly install matting, first be sure that the ground has been cleared of rocks, sticks and debris and it is evenly graded. Matting should have continuous contact with underlying soil. Always be sure to check any manufacturer's specifications as well.

Finally, and likely to be used the least on smaller jobs, is inlet protection. If there is disturbance that drains into an unprotected storm water inlet, it is wise to invest in silt sacks or the combo of mesh grate, AASHTO 57 stone and a PVC overflow pipe.

No matter how small your job, erosion and sedimentation controls should always be implemented and maintained. Jobs with earth disturbance under 5000 ft^2 are sometimes overlooked, as an E&S plan may not need to be submitted to Conservation Districts for review. Although State regulations do not always require a written plan for projects under 5,000 ft^2 the local municipality may require one to be developed, kept on site, and even approved by the local Conservation District. Regardless, as stated previously E&S controls are always required to be installed. For assistance with installation, implementation of an E&S plan or general questions, please contact your local conservation district.

*** NEW DISTRICT STAFF ***

The Montgomery County Conservation District welcomed a new Resource Conservationist to their offices in June. Cathy Leonard has a diverse background in environmental protection. She earned a Master of Science in Biology from Kent State University studying aquatic ecology. She worked as an environmental land planner in Pennsylvania and New Jersey for the Waetzman Planning Group. In Bucks County, she managed the Lake Nockamixon Project for the Conservation District and worked to protect natural resources on private properties with the Heritage Conservancy.

The Bucks County Conservation District has welcomed a new Receptionist, Elaine Crunkleton. Elaine also serves as our Right-to-Know Officer. Elaine moved from Massachusetts to Bucks County in 1981 and has a husband, a son, and a lovely daughter-in-law. She and her husband enjoy birding and are active in the local birding community participating in various "Citizen Science" projects such as hawk watches, the Christmas Bird Count, the Pennsylvania Annual Migration Count, and has also contributed data to the current edition of the "Atlas of Breeding Birds in Pennsylvania." Elaine also enjoys nature photography, watercolor painting and cooking.

General Winter Site Maintenance

By Jim Demchak, Chester County Conservation District

Winter brings many challenges to maintaining an effective Erosion and Sedimentation control plan on construction sites. Winter rains and snow, freezing and thawing of the ground, and spring melt and rains can produce significant flow, greatly increasing the potential for erosion. Once the winter season hits in full force, the stabilization measures available to owner/operators become limited. So, ideally, construction sites should be stabilized in anticipation of winter for the best results. Be proactive rather than reactive. Knowing that this doesn't always happen, here are some E&S measures to be implemented during winter months.

- **Interim site stabilization** – All exposed soils should be immediately stabilized with winter seed such as winter rye or winter wheat and straw mulch at a rate of three tons per acre or erosion control blanket or other approved E&S products. When using straw mulch, an anchoring product such as tackifier should be used to keep the straw in place for the season.
- **Silt Fence** – It is imperative that all silt fences on site be properly installed and maintained. Frozen ground does not lend itself to silt fence installation, so again, be proactive rather than reactive. Snow should not be piled against silt fence for obvious reasons. The required weekly site inspections by owner/operators will go a long way in silt fence upkeep.
- **Soil Stockpiles** – All soil stockpiles must be protected with anchored down straw mulch and winter seed at a rate of three tons per acre and silt fencing installed at least on the down slope side of the stockpile.
- **Construction Entrances** – Often an afterthought, all construction entrances/exits must be properly stabilized and maintained. Mud tracked to public roads during winter months is not only an E&S concern, but becomes an increased hazard to public safety.
- **Inlet Protection** – Upon the stabilization and proper control of upslope areas, inlet protection should be removed from storm sewer inlets within paved streets and parking lots during winter months.
- **Sediment Basin/Trap Maintenance** – One of the most important maintenance items for basins and traps during winter months is the outlet structure. Checking that all seals retain their watertight seal is crucial. For basin with Faircloth skimmers, log on to www.fairclothskimmer.com for tips on winter icing remedies. Maintenance inspections should also address: signs of basin failure, monitoring sedimentation, removal of debris from outlet and basin, and making sure the spillway is clear.
- **Self-Inspections** – The most effective maintenance tool an owner/operator can employ is the completion of weekly self-inspections and after runoff rain events. Not only is it a stipulation of the NPDES permit, but it goes a long way to keeping a clean site by diagnosing a problem or potential problem and dealing with it before an inspection by a Conservation District representative notes site violations.

In closing, nothing is foolproof and there are no guarantees, but utilizing the above measures, being proactive, practicing preventative maintenance, and using common sense will help owner/operators in dealing with Old Man Winter and your friendly neighborhood conservation district.

Pasture Management Strategies for Regulatory Compliance

By Jessica Moldofsky,
Montgomery County Conservation District

As summer winds down, with shorter days and cooler nights, rain is limited, as are green pastures for grazing. Hot, dry weather in combination with heavy grazing pressure can lead to overgrazed pastures, and in turn, accelerated erosion and increased pollution. To help combat this, on September 14, twenty-five farmers attended a Pasture Management Workshop, hosted by Jessica Moldofsky of Montgomery County Conservation District and Andrew Frankenfield with Penn State Extension, to learn about improved grazing management strategies to alleviate pasture woes and the environmental concerns that accompany overgrazing.

While managing their pastures, farmers also need to consider their regulatory requirements. Two main regulations pertain to livestock farmers, including horse owners: Ch. 91 of Pa Code: Manure Management *or* Act 38 Nutrient Management, and Ch. 102.4a of Pa Code: Erosion and Sediment Control. These regulations are discussed below, along with pasture management strategies to assist operators in meeting them.

- Per manure management requirements, any farm that produces or utilizes manure is required to write and follow a manure management plan for the operation, and Conservation Districts can help farmers with this. In the case of concentrated animal operations (CAOs, or high density operations), a nutrient management plan must be written by a certified plan writer, reviewed and approved by the Conservation District board, and implemented by the farmer. The farmer should follow manure application setbacks, such as a 100-foot mechanical manure application setback from surface waters (streams, lakes or ponds), water wells, and open sinkholes. Additional precautions must be taken for winter manure application in order to reduce nutrient runoff to waterways.
- To satisfy Ch. 102.4a Ag Erosion and Sediment Control requirements, an Ag E&S plan is required for agricultural plowing or tilling activities *(including no till)* over 5,000 square feet and for animal heavy use areas. In addition, regardless of the size of tillage, best management practices for erosion and sediment control must be implemented and maintained. PAOneStop.org is a helpful, free online tool to create an Ag E&S plan, and Conservation Districts can provide assistance in meeting Ch. 102 requirements.
- Perform routine soil testing to determine soil nutrient needs. Soil sampling is one of the best and simplest methods of maintaining soil fertility to promote healthy pasture vegetation and reduce soil erosion. Soil test kits are inexpensive and can be obtained from Penn State Extension county offices.
- Apply manure to fields at rates consistent with soil need and crop uptake to limit nutrient runoff to waterways and pollution to groundwater.
- Minimize livestock access to streams, lakes and ponds through implementation of a stabilized crossing and/or streambank fencing.
- Minimize bare areas in pastures through the practice of managed grazing to maintain vegetation at a minimum height of three inches of uniform cover year-round. Loss of vegetation leads to increased soil erosion, and therefore, sediment and nutrient loss to waterways.
- During times of drought, excessive rain, frozen ground, or other adverse growing conditions, confine horses to a sacrifice area to protect pastures and allow time for vegetation to regrow. This heavy use area should be located 'high and dry,' away from surface waters, to improve drainage and prevent manure and sediment runoff entering waterways. When managed properly, sacrifice areas are an excellent tool to assist an operator in manure management and erosion & sediment control compliance.
- Practice rotational grazing in conjunction with a sacrifice area. Rest and rotation are two of the most important management strategies to reduce overgrazing and soil erosion.

Adequately managing pastures, in conjunction with following Manure Management and Ag E&S plans will assist in achieving regulatory compliance, which improves both the quality of the farm and the environment. Conservation Districts are available to assist farmers in meeting these regulations.

Common Mistakes Found on Permit Applications

By Cody Schmoyer,
Montgomery County Conservation District

With less than a year's experience reviewing plans, I have already started to see a trend in common mistakes found on NPDES permit applications. Repeated mistakes range from improperly completing the notice of intent to incorrectly utilizing BMPs such as silt fence/compost sock and vegetated channels and swales. Below is a list of comments from the DEP manual I find myself repeating regularly on plan reviews.

- Compost sock and silt fence should be at least 8 feet from the toe of fill slope.
- Compost sock and silt fence should be parallel to existing contours.
- Compost sock and silt fence should extend at least 8 feet upslope at a 45 degree angle to prevent end-arounds and adequate ponding. For example, 18 inch socks should be pointed upslope at least 18-24 inches upslope in elevation difference to ensure that end-around flows are avoided.
- Erosion control blanket should be used and shown on the plans in areas that are disturbed within 50 feet of a stream or wetland and 100 feet of HQ and EV waterways.
- For channels, the maximum permissible shear stress for grass is 1 lb/ft^2 per Table 6.2, and the maximum permissible velocity for grass is 4 ft/sec per note 2 of Table 6.4.
- The manning's "n" for trapezoidal channels with vegetative stabilization should be taken from Table 6.3.
- Bottom elevations for sediment basins and traps should not be located below the seasonal high water table, adjacent wetlands or perennial stream channels.
- Emergency spillways constructed in fill should have a TRM, rip rap or other hard armor protection which extends at least 15 feet beyond the toe of the embankment to the receiving waterway, channel or other non-erosive outlet.
- Where a discharge from a temporary or permanent basin or trap is to a flow path other than a surface water, an analysis of the discharge should be conducted to demonstrate that no accelerated erosion or damage from stormwater will occur. Level spreaders can be used to get around this calculation, but they must be located within 150 feet of receiving stream or storm sewer.
- A channel that discharges to a basin or trap should have a lining that extends at least 10 feet along the basin bottom.
- The notice of intent should be <u>completely</u> filled out including sections C-2 and C-5. "N/A" or "none identified" should be filled in for section C-5. Even if the site balances, one or both boxes should be checked. Most projects import stone and asphalt materials.
- Section F of the NOI should have an engineer seal if structural BMPs or calculations are present on the plan. Refer to notice of intent for instructions.
- If not discharging to a storm sewer and no water encroachment permit was applied for or acquired, then non-surface waters in section C-5 should be checked along with section D-5.

The Chester County Conservation District proudly announces our

2015 Conservationists of the Year

2015 Chesapeake Bay Conservationist of the Year
— Glenn & Lois Ranck —

Tom Brosius, CCCD Board Chairman; Dan Miloser, CCCD Ag Team Leader; Dan Miller, CCCD Ag Resource Conservationist, Glenn Ranck, Annika Ranck, Lois Ranck and Sophia Ranck, owners.

On June 18, 2015, the Chester County Conservation District (CCCD) presented Glenn and Lois Ranck, and their daughters Sophia and Annika with the sign recognizing their dairy farm as the 2015 Chesapeake Bay Conservationist of the Year. This recognition is for the outstanding operation and conservation best management practices installed on the farm. Congratulations to the Rancks on being the first ever recipients of this District award.

Several years ago, Glenn completed construction on manure storage, lot runoff into a filter area, underground outlets and a field diversion. The implementation of these BMPs made a major impact to the farm. Later, he did additional field work involving waterways and terraces on the farm.
According to CCCD Agriculture Conservationist Dan Miller, *"Glenn's farm has basically become as complete from an environmental standpoint as any farm that we have worked with."*

2015 Delaware Bay Conservationist of the Year
— P&V Mushrooms, Avondale, PA —

In February of 2012, Phil and Vince D'Amico completed an innovative mushroom farm environmental management project consisting of a concrete wastewater storage tank, wharf runoff collection system, constructed wetland for primary treatment, and a spray irrigation system for secondary treatment. With the new system they are able to collect, treat, and reuse the wastewater generated at the farm to fertilize a hayfield which is then harvested and used as a raw ingredient to make mushroom substrate for subsequent mushroom crops. Their efforts have tremendous water quality benefits on the adjoining tributary of the White Clay Creek.

P&V D'Amico Mushroom Farm, Avondale, continues to strive for environmental excellence and have since implemented Mushroom Farm Environmental Management Plans (MFEMPs) on their other farm location. Congratulations to P&V Mushrooms!

The D'Amicos
Back Row: Nicholas D'Amico, Dominic D'Amico, Al D'Amico, Vince D'Amico, Chris D'Amico
Front Row: Matthew D'Amico, Brendon D'Amico

Back Row: Adam Mowery, Mowery Environmental, LLC; Chris Strohmaier, CCCD Managing Director; Bob Struble, CCCD Board Director; Tom Brosius, CCCD Board Chairman; Dan Miloser, CCCD Ag Team Leader
Front Row: Pownall Jones, CCCD Board Director Emeritus; Phil D'Amico, Owner; Vince D'Amico, Owner; and Mike Zuk, CCCD Mushroom Resource Conservationist

Pennsylvania Department of Environmental Protection (DEP) often receives complaints about stormwater, local drainage problems, and small stream flooding. This three-part set of "information sheets" is intended to provide general information about these topics.

Additional information about stormwater and about DEP's programs can be found on the web at <www.depweb.state.pa.us>. keyword: stormwater

Stormwater Information Sheet #3 – Small Stream Flooding / Corrective Action in Streams

Flooding is a natural phenomenon. All streams and rivers will have overbank flows from time to time; depending, of course, on the amount and intensity of rainfall, and the characteristics of the watershed. But there are some places in Pennsylvania where flooding has become a too-frequent problem. Land use changes over time have caused some places to become flood-prone. This problem is especially common in urban and suburban areas, where watersheds have become densely developed, and where much of the development occurred before effective stormwater control was mandated by law. In these watersheds, the volume and timing of runoff is dramatically altered, and peak stream flows are considerably higher than they would have been in pre-development times. The increase in peak flows, and the increasing frequency of very high flows, results in several problems, including dangerous flood conditions and property damage by floodwater.

Closely related to the problem of flooding is the problem of stream channel erosion. Streams in developed areas often suffer dramatic erosion of their channels, following a process that can seem unpredictable and haphazard. The stream channels widen, and the streambanks become physically unstable, as large amounts of soil wash away. This physical process is part of nature's response to the increasing frequency of high flows in the stream. Problems for people and communities are often the result, because streambank erosion can threaten the integrity of streamside properties and streamside infrastructure.

High flood flows, high flood frequency, and stream channel instability cause serious problems for people who live near affected streams. People who are affected want to know what they can do to improve their situation. Could engineering or construction in the stream channel provide any relief? In the sections below, we address some issues that are of particular interest to people who live near flood-prone streams.

1. Removing downed trees, large woody debris, and other flood debris: After a flood, it is common to find piles of debris in stream channels, made of uprooted trees, tree limbs, leaves, and other debris. Large debris piles could restrict a stream channel's capacity to convey flood flows during subsequent high-flow events. Streamside property owners may be interested in clearing the channel by removing flood debris. In such cases, the following things should be considered:
   A. A permit is generally required for any activity that takes place in, along, or projecting into a waterway; or for any activity that changes a waterway's course, current or cross-section. See #2 and #4 below.
   B. A permit may not be required to remove flood debris from a stream channel, if the work is done by hand, or if it is done with machinery from the top of the bank. However, to perform work that involves mechanical equipment entering a stream channel, a permit is required.
   C. In general, live vegetation should not be removed from stream channels, islands, or streambanks. Removing live vegetation from a stream tends to lead to progressively worse erosion.
   D. In general, sediment should not be removed from a stream channel without approval from DEP (see #2 and #4 below).

2. Removing debris or sediment at bridges and culverts: Bridge openings and culverts can act as restrictions on the flow of flood water, flood debris, and sediment. Sometimes the hydraulic capacity of a bridge opening or culvert becomes reduced by the accumulation of sediment or debris. Under Pennsylvania's regulations, the owner/operator of the bridge or culvert has the obligation to remove sediment or debris from directly beneath the structure, and within fifty feet upstream and downstream of the structure. They have the right to do this without having to obtain a specific approval from DEP, under the operation and maintenance provisions applicable to the structure under Chapter 105. All such work should follow the Department's *Standards for Channel Cleaning at Bridges and Culverts*, and should be conducted in a manner that minimizes erosion and sedimentation. Additional information on means and methods may be available from DEP's Regional Office.

3. Erecting a dike, levee, or floodwall: It is illegal to construct any kind of obstruction in a floodway or floodplain without a written permit from DEP. Many municipalities also have ordinances controlling the use of lands in the floodplain. Constructing an illegal levee or floodwall can cause several problems, including increasing the risk of flooding for others, and possibly providing a false sense of security for those behind the structure.

4. Activities requiring a permit or approval from DEP **

- **A. Debris removal using mechanical equipment.** Driving vehicles or equipment in a stream destroys aquatic life, causes erosion, and is generally prohibited. If having equipment enter the stream is necessary to accomplish the desired task, then a permit is required. The Department may issue an "emergency permit" in cases where it finds that immediate remedial action is necessary to alleviate an imminent threat to life, property, or the environment. Contact DEP's Regional Office for details.
- **B. Sediment removal from a stream channel.** After a flood, some people are tempted to remove sediment (rocks, gravel, sand, or mud) from a stream channel, believing that this will increase the stream's flood-carrying capacity. In fact, sediment removal is not recommended as a way to address flooding problems. It is almost certain to be ineffective, and it may destabilize the channel and aggravate existing problems. Excavation or earth-moving in a stream channel is prohibited without a permit. Contact DEP's Regional Office for details.
- **C. Streambank stabilization.** Engineered solutions are sometimes used to stabilize eroding streambanks. These projects are sometimes undertaken by public agencies to protect publicly-owned structures. Private property owners may choose to undertake streambank stabilization on their own property, at their own expense. Professional engineering assistance is usually necessary. A permit from DEP is generally required, and Federal authorization from the U.S. Army Corps of Engineers is usually required as well.
- **D. Repair or replacement of bridges and culverts.** Bridges, culverts, utility line crossings, or other infrastructure that crosses a stream, or that lies adjacent to a stream, can become damaged in a flood. In such an event, the owner of the damaged structure may wish to undertake repairs, or to construct a replacement structure. In general, any work to repair or replace these structures requires some form of approval from DEP. The Department may issue an "emergency permit" in cases where it finds that immediate remedial action is necessary to alleviate an imminent threat to life, property, or the environment. Contact DEP's Regional Office for more information.
- **E. Levees and floodwalls.** Permits are required to build any kind of levee, dike, or floodwall in a floodway or floodplain.

** A permit is generally required for any activity that takes place in, along, or projecting into a waterway; or for any activity that changes a waterway's course, current or cross-section. These activities may also require Federal approval from the U.S. Army Corps of Engineers, Regulatory Branch. Information about the work of the Corps' Regulatory Branch may be found on the web at: < http://www.nap.usace.army.mil/cenap-op/regulatory/regulatory.htm>

DEP's Flood Protection and Stream Improvement Programs:

Through the Bureau of Waterways Engineering and Weltands, DEP maintains programs for providing engineering assistance to municipalities for flood protection and stream improvement. Further information may be found on DEP's website: <www.depweb.state.pa.us> (keyword: Waterways Engineering)

Flood Response:

When there is a flood emergency, DEP participates in emergency response and post-disaster flood relief activities, in coordination with other Federal, State, and County agencies. Further information about these activities may be found on DEP's website: <www.depweb.state.pa.us> (keyword: Flood Recovery)

CONSERVATION & YOU
688 Unionville Rd, Suite 200
Kennett Square, PA 19348

Bucks County Conservation District
1456 Ferry Road
Suite 704
Doylestown, PA 18901
(215) 345-7577
www.bucksccd.org

Chester County Conservation District
688 Unionville Road
Suite 200
Kennett Square, PA 19238
(610) 925-4920
www.chesco.org/conservation

Delaware County Conservation District
Rose Tree Park - Hunt Club
1521 N. Providence Road
Media, PA 19063
(610) 892-9484
www.delcocd.org

Montgomery County Conservation District
143 Level Road
Collegeville, PA 19426-3313
(610) 489-4506
www.montgomeryconservation.org