

# SEDIMENTS

Newsletter of the North Carolina Sedimentation Control Commission

## EPA Re-issues the Construction General Permit, Effluent Limit Guideline Soon

(<http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>)

**C**onstruction activities (including other land-disturbing activities) that disturb one acre or more are regulated under the NPDES stormwater program. On March 10, 2003, new regulations came into effect that extended coverage to construction sites that disturb one to five acres in size, including smaller sites that are part of a larger common plan of development or sale. Sites disturbing five acres or more were regulated prior to 2003.

Operators of regulated construction sites are required to develop and implement stormwater pollution prevention plans and to obtain permit coverage from an authorized state or from EPA, if the state is not authorized by EPA to issue NPDES permits.

Most states, including North Carolina, are authorized to implement the NPDES permit program, including the stormwater program. (Note: Construction activities in EPA Region 4 are covered by a sepa-

rate construction permit (<http://www.epa.gov/npdes/pubs/cgp-reg4.pdf>). In North Carolina, the Land Quality Section within the NC Department of Environment and Natural Resources in conjunction with the NC Sediment Control Commission implements the NC Sediment and Erosion Control regulations and guidelines. Disturbed areas of one or more acres are covered.

EPA has issued a final 2008 Construction General Permit (CGP) that covers discharges of stormwater from certain construction sites. This permit contains substantially the same terms and conditions as the 2003 CGP. In response to comments on the proposal, EPA has reorganized the content of the permit to better clarify existing requirements. This CGP has been issued for a two-year time period and applies only to new discharges. Construction site operators with permit coverage under the 2003 CGP may continue to operate under the terms of conditions of that permit and need not file a new NOI. However, there is currently little change in the North Carolina regulations.

EPA is also in the process of developing a national regulation (called an Effluent Limitations Guideline) for the construction and development industry that the Agency made available for public comment earlier this month. The Effluent Guideline will contain a range of provisions designed to address discharges of sediment and discharges of other sources of pollutants commonly found at construction sites (e.g., good housekeeping practices). This Guideline could be suggesting best management practices, specific design requirements, or even sediment or turbidity

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Figure 1. Examples of sediment control BMPs: (a) Coir Wattles treated with Polyacrylamide installed in a ditch line used to reduce velocity and turbidity of water and (b) hydroseeding with a mixture of site-specific PAM, native warm season grass seed, rye grain, hydromulch, and slow release fertilizer.

State of North Carolina,  
Department of Environment & Natural Resources  
William G. Ross, Jr., Secretary

Land Quality Section  
Division of Land Resources  
James D. Simons, Director and State Geologist

limits in discharges. The proposed Effluent Guideline will be announced in the Federal Register (shortly) and on EPA's website at <http://www.epa.gov/waterscience/guide/construction/>. Upon completion of the Effluent Guideline, the Agency will develop and issue an updated CGP that incorporates the provisions of the Effluent Guideline as soon as possible, but not later than July 2010.

## NC Sedimentation Control Commission: May Actions

At its meeting on May 28, 2008 the NC Sedimentation Control Commission (SCC) took the following actions:

### Education Projects:

- Approved funding for: Local programs workshops (\$69,391.00); Four workshops for Design Professionals (\$23,719.00); Production of Sediments Newsletter (\$40,250.00)

### Local Program Reviews:

- City of Wilson: Approved the new delegation of local program authority and local ordinance for the City of Wilson. Note: during the February meeting the submission was passed contingent upon a draft proposal drawn up by the City of Wilson, which has been received.
- Mecklenburg County: Motion to continue delegation approved subject to conditions: "... continued delegation of the program contingent on the county updating their general inspection report, adding required language to approval letter, and providing additional supervision to inspection staff."
- City of Charlotte: Motion to continue delegation was approved.
- Rowan County: Motion to continue Rowan County's probation approved. The probation is to continue until their revised ordinance is adopted by the county including any suggested changes requested by the Attorney General's office or by the Land Quality Section.

### Self Inspection Rule (draft):

- Request to create a stakeholders group for self-inspection rule: Draft was submitted by Land Quality Sec-

tion stating guidelines to follow when conducting site inspections. Motion to proceed with said draft was approved. A draft must be taken to stakeholders meeting. Achieving useful inspections is the goal.

## NC Sedimentation Control Commission: August Actions

At its meeting on August 21, 2008 the NC Sedimentation Control Commission (SCC) took the following actions:

### Local Program Reviews:

- City of Monroe: Local Program was reviewed August 6, 2008. Motion to continue delegation was approved.
- Henderson: Motion to continue delegation was approved.
- Caldwell County started their program in 2007. The Commission placed the program on probation and requested that the County report on efforts to correct deficiencies at the November meeting.

### Local Program Contracts:

- Approved Local Program Contract Fund request to the Town of Columbus for \$12,405 to assist with the start-up of a local erosion and sedimentation control program. The funds requested will be used to purchase tools and safety equipment. Both the Local Program Contract Funds (LPCF) Committee and staff recommend approval of this request contingent on the Town of Columbus requesting and receiving delegation at the November Sedimentation Commission Meeting.
- Approved amendments to the 2009 Local Program Contract. Contract Evaluation Guidelines have been updated with various "date" changes.

### Design Manual Revisions:

Erosion and Sediment Control Planning and Design Manual was sent out to the public with the intention of getting comments for change. Some comments were incorporated that were additions to the changes recommended by Land Quality Section Staff. The changes were approved by the Commission.

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*SEDIMENTS* is published quarterly by the NC Sedimentation Control Commission to provide information and assistance to the regulated community and to facilitate communication among personnel of state and local erosion and sedimentation control programs.

Send comments to Ashley Rodgers, NCDENR-Land Quality, 1612 Mail Service Center, Raleigh, NC 27699-1612. Email: Ashley.Rodgers@ncmail.net. Send change of address and subscription information to NCSU Water Quality Group, NCSU Box 7637, Raleigh, NC 27695-7637; (919) 515-3723; cathy\_smith@ncsu.edu). To receive *Sediments* electronically, please subscribe at: <http://www.dlr.enr.state.nc.us/pages/sedimentationnewsletters.html>. Five thousand copies of this newsletter were printed at a cost of \$1,490 or 30 cents per copy.

Personnel of the Land Quality Section of the NC Department of Environment and Natural Resources provide information and assistance for implementation of the NC Erosion and Sedimentation Control Program. For assistance, please contact the Regional Engineer or the Raleigh headquarters listed below:

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## The North Carolina Sedimentation Control Commission

The Sedimentation Control Commission (SCC) was created to administer the Sedimentation Control Program pursuant to the NC Sedimentation Pollution Control Act of 1973 (SPCA). It is charged with adopting rules, setting standards, and providing guidance for implementation of the Act. The composition of the Commission is set by statute to encompass a broad range of perspectives and expertise in areas related to construction, industry, government, and natural resource conservation and quality. All members are appointed by the Governor and serve three-year terms, except for the Director of the Water Resources Research Institute of the University of North Carolina, who serves as long as he remains Director. The chairman of the SCC is named by the Governor. The following is a list of current members with the organizations they represent:

### **Chairman:**

Donnie W. Brewer  
Greenville

NC Environmental Management Commission

### **Commissioners:**

W.T. "Buzz" Bryson  
Raleigh

NC Public Utilities

Elaine C. Chiosso  
Bynum

Non-governmental Conservation

John William Miller, Jr.  
Burnsville

NC Mining Commission

Joseph H. Kleiss  
Raleigh

NC State University, Dept. of Soil Science

Grover McPherson  
Winston-Salem

NC Soil and Water Conservation Commission

David H. Moreau  
Raleigh

Water Resources Research Institute of  
The University of North Carolina

Robin Smith  
Asheville

Non-governmental Conservation

Mark A. Taylor  
Greensboro

Professional Engineers of NC

Richard Vick  
Wilson

Carolinas Associated General Contractors

Rob Weintraub  
Wake Forest

NC Home Builders Association

## LQS Personnel Changes

**Diane Adams** has been promoted to the Senior Environmental Specialist position in the Fayetteville Regional Office.

**Bill Beck** has been promoted to the Senior Environmental Specialist position in the Asheville Regional Office.

**Joe Dupree** has been promoted to the Senior Environmental Specialist position in the Raleigh Regional Office.

**Tamera Eplin** is a new Assistant Regional Engineer in the Mooresville Regional Office.

**James "Chip" Moore** is a new Assistant Regional Engineer in the Mooresville Regional Office.

**Ed Robinette** has retired from his position as Environmental Specialist with the Mooresville Regional Office.

**Erich Schweiber** is a new Environmental Specialist in the Mooresville Regional Office.

**Lori Thaggard** is a new Environmental Specialist in the Fayetteville Regional Office.

**Jeffrey Wait** is a new Environmental Specialist in the Asheville Regional Office.

## New Member Joins the NC Sedimentation Control Commission

Ms. Robin Smith, enforcement coordinator with the Conservation Council of North Carolina Foundation (CCNCF), has been appointed by the Governor to serve on the Sedimentation Control Commission (SCC) as a representative of nongovernmental conservation interests. She has a Master of Environmental Management from Duke University, and a BS from Ferrum College, VA. Ms. Smith's background is in technical consulting, with over nine years experience in the management of water and air resources as an environmental scientist and technical training specialist, including direct experience with the EPA's enforcement programs. Her strong data processing, research, and analytical skills have provided valuable insights for the ongoing assessment of North Carolina's environmental enforcement record.

## NC Sedimentation Control Commission: August Actions

*(Continued from Page 2)*

### Field Tour for November Meeting:

- Tentative dates will be for November 19-20th, 2008. Site to visit for the field tour will be in the western part of the state to examine mountainous sites.

### Self-Inspection:

- Approved a draft rule for self-inspection of construction sites based on the recommendations of the Technical Advisory Committee and a stakeholders group appointed by the Chair. The rule making process will proceed this fall with the opportunity for public comment.

## News from the Land Quality Section

### Upcoming Workshops

Each year, the Sedimentation Control Commission, in conjunction with the Land Quality Section and the Water Resources Research Institute, sponsors a series of workshops for design professionals. These workshops are intended to provide updates to the Sedimentation Pollution Control Act, current design guidelines, and new technologies for controlling erosion and sedimentation. Professional engineers and land surveyors may earn 12 PDHs and landscape architects may receive 10 continuing education credits for completion of both days.

Two workshops have been scheduled for this fall:

October 21-22, 2008 at the  
Holiday Inn Select in Hickory, NC

November 5-6, 2008 at the Sheraton  
in New Bern, NC

Agendas and registration information:

<http://www.ncsu.edu/wrri/erosionworkshops.html>

To report possible violations of the NC Sedimentation Pollution Control Act, call

1-866-STOPMUD

786-7683

## **Draft Rule for Self Inspections**

In 2006, the legislature amended the Sedimentation Pollution Control Act to include a requirement for self-inspections of construction sites throughout the state. To clarify what should be included in these inspections and when they should be performed, the Sedimentation Control Commission authorized its Technical Advisory Committee to draft a rule. At the August 21, 2008, commission meeting, the SCC adopted the draft rule, which will now be sent to rulemaking and provide an opportunity for a public comment period. The approved draft rule is as follows:

### **15A NCAC 04B .0131 SELF-INSPECTIONS**

Where inspections are required by G.S. 113A 54.1(e)

(1) The person who performs the inspection shall make a record of the site inspection by:

- a. documenting that all of the erosion and sedimentation control measures, practices and devices, as called for in a construction sequence consistent with the approved erosion and sedimentation control plan, including but not limited to sedimentation control basins, sedimentation traps, sedimentation ponds, rock dams, temporary diversions, temporary slope drains, rock check dams, sediment fence or barriers, all forms of inlet protection, storm drainage facilities, energy dissipaters, and stabilization methods of open channels, have initially been installed and do not significantly deviate from the locations, dimensions and relative elevations shown on the approved erosion and sedimentation plan. Such documentation shall be accomplished by initialing and dating each measure and/or practice shown on a copy of the approved erosion and sedimentation control plan or by completing, dating and signing an inspection report that lists each measure, practice and/or device shown on the approved erosion and sedimentation control plan. This documentation is only required upon the initial installation of the erosion and sedimentation control measures, practices and devices as set forth by the

approved erosion and sedimentation control plan or if the measures, practices and devices are modified after initial installation;

- b. documenting the completion of any phase of grading for all graded slopes and fills shown on the approved erosion and sedimentation control plan, specifically noting the location and condition of the graded slopes and fills. Such documentation shall be accomplished by initialing and dating a copy of the approved erosion and sedimentation control plan or by completing, dating and signing an inspection report;
- c. documenting the location of temporary or permanent ground cover, and that the installation of the ground cover does not significantly deviate from the approved erosion and sedimentation control plan. Such documentation shall be accomplished by initialing and dating a copy of the approved erosion and sedimentation control plan or by completing, dating and signing an inspection report;
- d. documenting that maintenance and repair requirements for all temporary and permanent erosion and sedimentation control measures, practices and devices have been performed. Such documentation shall be accomplished by completing, dating and signing an inspection report (the general storm water permit monitoring form may be used to verify the maintenance and repair requirements); and
- e. documenting any significant deviations from the approved erosion and sedimentation control plan, corrective actions required to correct the deviation and completion of the corrective actions. Such documentation shall be accomplished by initialing and dating a copy of the approved erosion and sedimentation control plan or by completing, dating and signing an inspection report.

The documentation, whether on a copy of the approved erosion and sedimentation control plan or an inspection report, shall include the name, address, affiliation, telephone number, and signature of the person conducting the inspection and the date of the inspection. Any relevant licenses and

certifications may also be included. Any documentation of inspections that occur on a copy of the approved erosion and sedimentation control plan shall occur on a single copy of the plan and that plan should be made available on the site. Any inspection reports shall also be made available on the site.

(2) The inspection shall be performed during or after each of the following phases of a plan:

- a. installation of perimeter erosion and sediment control measures;
- b. clearing and grubbing of existing ground cover;
- c. completion of any phase of grading of slopes or fills that requires provision of temporary or permanent ground cover pursuant to G.S. 113A-57(2);
- d. completion of storm drainage facilities,;
- e. completion of construction or development; and
- f. quarterly until the establishment of permanent ground cover sufficient to restrain erosion or until the financially responsible party has conveyed ownership and/or control of the tract of land for which the erosion and sedimentation control plan has been approved and the agency that approved the plan has been notified. If the financially responsible party has conveyed ownership and/or control of the tract of land for which the erosion and sedimentation control plan has been approved, the new owner or person in control shall conduct and document inspections quarterly until the establishment of permanent ground cover sufficient to restrain erosion.

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## **Contractor Training Materials**

A set of presentation materials designed to train contractors in erosion and sediment control have been completed. Topics of the training include an introduction to the Sedimentation Pollution Control Act, overviews of basic erosion and sediment control best management practices, working around a stream, NPDES requirements, and many more! To speak with someone about using these materials for a training session, please contact the Central Office at (919) 733-4574. Funding for the presentation of these workshops may be available on a limited basis.

# American Society of Agricultural and Biological Engineers (ASABE) Annual Meeting

By Richard A. McLaughlin, PhD  
Soil Science Department, NCSU

The American Society of Agricultural and Biological Engineers (ASABE) had their annual international meeting in Providence, Rhode Island from June 29-July 2. Papers presented at this meeting are often relevant to erosion and sediment control professionals, covering modeling, restoration, hydrology, and many other subjects. While there were far too many papers to summarize here, some examples of the presentations at the meeting follow.

## ***Mechanisms of Erosion of Volcanic Soils on Non-Agricultural Lands in Guam.***

*Benjamin C. Doerge, P.E., G.E., Geotechnical Engineer, USDA-Natural Resources Conservation Service, 501 W. Felix St., Bldg. 23, Ft. Worth, TX 76115, Ben.Doerge@ftw.usda.gov*

*Craig Smith, Ph.D., Agronomist, SDA-NRCS, Mongmong, Guam, Craig.Smith2@pb.usda.gov*

*2008 ASABE Annual International Meeting Paper #083346*

Benjamin C. Doerge, with USDA-NRCS, presented an eye-opening paper about erosion on Guam as result of various types of disturbances. The volcanic soils there are very shallow and highly susceptible to erosion when the vegetation is disturbed, and both water and wind are major erosive forces on the island. Examples of disturbance are vehicular traffic and burying, which is a common practice to generate forage. Once an area is disturbed, the erosion is rapid and difficult to stop. Revegetation is hampered by acidic, low-fertility subsoils and saprolite. As a result, erosion rates of 300 tons/acre/year are evident in places, dumping up to three feet of sediment into the receiving bays. Successful revegetation was achieved only with large plugs of mature grass plants and heavy fertilization. Seeding and mulching were unsuccessful due to the low fertility and possible aluminum toxicity. There are many similarities between these situations and construction sites in North Carolina! (Paper #083346)

## ***Spatial-Temporal Variability and Hydrologic Connectivity of Runoff Generation Areas in Sand Mountain Region of Alabama***

*Sumit Sen, Graduate Research Assistant, Auburn University, Biosystems Engineering, 200 Tom E. Corley Building, Auburn, AL 36849*

*Puneet Srivastava, Assistant Professor, Auburn University, Biosystems Engineering, Auburn, AL*

*Jacob H. Dane, Professor, Auburn University, Agronomy and Soils, Auburn, AL*

*Kyung H. Yoo, Professor, Auburn University, Biosystems Engineering, Auburn, AL*

*Joey N. Shaw, Professor, Auburn University, Agronomy and Soils, Auburn, AL*

*2008 ASABE Annual International Meeting Paper #083806*

For those of you who use hydraulic conductivity (k) in your work, you will be glad to know that it matters. A study from Auburn showed that areas with soils with lower k values generate runoff first during a rainfall event. As rainfall intensity increases, areas with higher k soils start to generate runoff. This may seem obvious but they installed 31 runoff sensors across a field to prove it.

## ***Validation of a Low Cost Flow Measurement System for Monitoring Vegetative Treatment System Performance***

*Laura M Pepple, Agricultural & Biosystems Eng., Iowa State Univ., 3252 NSRIC Ames, IA 50011, pepple@iastate.edu*

*Ross V Muhlbauer, Agricultural & Biosystems Engineering, Iowa State University, Ames, IA, rmuhlbar@iastate.edu*

*Robert T Burns, Agricultural & Biosystems Engineering, Iowa State University, Ames, IA, rburns@iastate.edu*

*Lara Moody, Agricultural & Biosystems Engineering, Iowa State University, Ames, IA, lmoody@iastate.edu*

*Carl Pederson, Agricultural & Biosystems Engineering, Iowa State University, Ames, IA, carl@iastate.edu*

*Daniel S Andersen, Agricultural & Biosystems Engineering, Iowa State University, Ames, IA, dsa@iastate.edu*

*Tim A Shepherd, Agricultural & Biosystems Engineering, Cornell University, Ithaca, NY, tas229@cornell.edu*

Measuring storm flows for research or compliance can be an expensive venture, with equipment costs in the thousands of dollars for each monitoring point. A group from Iowa State has developed and tested a relatively simple, low-cost (<\$1,000) system that can equal the performance of commercial products. The key elements are a locally-fabricated flume with a series of float switches installed in the approach section. The float switches are set vertically in series so each one closes sequentially when the water level reaches them, triggering a timer. As the water drops in the flume, the switches open and again trip a timer. This provides a time period for each level of water in the flume, which in turn can be used to estimate flow. By applying two rules about when to include which float switch, this system achieved >90% accuracy.

## ***Effects of native plant species, mycorrhizal inoculum, and mulch on restoration of reservoir sediment following dam removal, Elwha River, Olympic Peninsula, Washington***

*Kerri L. Cook, ASABE Guest, Wesley W. Wallender, ASABE Member, Caroline S. Bledsoe, Gregory Pasternack, and Shrinivasa K. Upadhyaya University of California, Davis, Davis CA 95616*

*2008 ASABE Annual International Meeting Paper No: 084180*

For many years, restoration of disturbed areas has been found to be enhanced by the addition of mycorrhizae, fungi which enhance nutrient uptake by plant roots. A unique application of this concept was presented by a group from Washington State, where a series of dams are scheduled to be removed to enhance fish habitat. The main concern was that the resulting stream banks, formerly hundreds of feet underwater, would be difficult to vegetate and could be highly unstable. To address this, the authors dredged some of the bottom sediment of a reservoir soon to be removed and compared plant growth in pots. As it turned out, inoculating the soil with mycorrhizae was unnecessary, as even the plants in the untreated soil developed inoculated roots. Either the fungi survived a century under water, or their inoculum was settling to the bottom periodically. Adding a mulch significantly reduced runoff and erosion, but we already knew that.



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10/21-22/2008	<b>Erosion and Sedimentation Control Planning and Design Workshop</b> , Hickory, NC <a href="http://www.ncsu.edu/wrri/erosionworkshops.html">http://www.ncsu.edu/wrri/erosionworkshops.html</a>	12/3/08	<b>Level III-A Design of Erosion &amp; Sediment Control Plans</b> , Raleigh, NC <a href="http://www.bae.ncsu.edu/workshops/dot">http://www.bae.ncsu.edu/workshops/dot</a>
10/23/2008	<b>Sediment and Erosion Control Workshop</b> , Raleigh, NC <a href="http://www.soil.ncsu.edu/training/training.php">http://www.soil.ncsu.edu/training/training.php</a>	12/4/2008	<b>Polymer Enhancement of Erosion &amp; Turbidity Control on Construction Sites</b> , Raleigh, NC <a href="http://www.soil.ncsu.edu/training/training.php">http://www.soil.ncsu.edu/training/training.php</a>
11/5-6/2008	<b>Erosion and Sedimentation Control Planning and Design Workshop</b> , New Bern, NC <a href="http://www.ncsu.edu/wrri/erosionworkshops.html">http://www.ncsu.edu/wrri/erosionworkshops.html</a>	12/4/2008	<b>Level III-B: Design of Erosion &amp; Sediment Control for Reclamation Plans</b> , Raleigh, NC <a href="http://www.bae.ncsu.edu/workshops/dot">http://www.bae.ncsu.edu/workshops/dot</a>
11/3-6/2008	<b>2008 Southeast Regional Stream Restoration Conference</b> , Asheville, NC <a href="http://www.ncsu.edu/srp/2008conference/">http://www.ncsu.edu/srp/2008conference/</a>	12/5/08	<b>Level II: Erosion &amp; Sediment Control/Stormwater Site Management</b> , Raleigh, NC <a href="http://www.bae.ncsu.edu/workshops/dot/">http://www.bae.ncsu.edu/workshops/dot/</a>
11/13/2008	<b>Level I: Erosion &amp; Sediment Control/Stormwater Inspector/Installer</b> , Hickory, NC. <a href="http://www.bae.ncsu.edu/workshops/dot">http://www.bae.ncsu.edu/workshops/dot</a>	12/8/08	<b>Level I: Erosion &amp; Sediment Control/Stormwater Inspector/Installer</b> , Raleigh, NC. <a href="http://www.bae.ncsu.edu/workshops/dot">http://www.bae.ncsu.edu/workshops/dot</a>
11/14/2008	<b>Level II Recertification: Erosion &amp; Sediment Control/Stormwater</b> , Hickory, NC <a href="http://www.bae.ncsu.edu/workshops/dot/">http://www.bae.ncsu.edu/workshops/dot/</a>	12/9/08	<b>Green Building Design</b> , Wilmington, NC <a href="http://www.bae.ncsu.edu/training_and_credit/workshops.php">http://www.bae.ncsu.edu/training_and_credit/workshops.php</a>
12/3-4/08	<b>Stormwater BMP Inspection &amp; Maintenance Certification Workshop</b> , Raleigh <a href="http://www.bae.ncsu.edu/stormwater/training/bmp-workshop.html">http://www.bae.ncsu.edu/stormwater/training/bmp-workshop.html</a>	12/12/08	<b>Level II Recertification: Erosion &amp; Sediment Control/Stormwater</b> , Raleigh, NC <a href="http://www.bae.ncsu.edu/workshops/dot/">http://www.bae.ncsu.edu/workshops/dot/</a>