

SEDIMENTS

State of North Carolina
Department of Environmental Quality

Division of Energy, Mineral, and Land Resources
Brian Wrenn, Director

ABOUT SEDIMENTS

SEDIMENTS is a newsletter published by the North Carolina 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.

SEDIMENTS is available in electronic form at:

<https://deq.nc.gov/SEDIMENTS>

And via the WRRRI Sediments listserv. To subscribe follow the directions at:

<https://wrrri.ncsu.edu/contact-us/listservs/>

Send comments to the [Sediment Education Specialist](#).

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2020 North Carolina Erosion and Sediment Control Design Workshops

Presented by:

NC Department of Environmental Quality - Land Quality Section

In partnership with:

NCSU Department of Crop & Soil Science
Southeast Chapter - International Erosion Control Association

Due to the impacts of Covid-19 the in-person workshops originally scheduled for October 1 in Hickory and December 3 in Raleigh were cancelled. In its place a series of ten free one-hour weekly webinars were held from the beginning of October through mid December. These webinars were presented by NC DEQ – Land Quality Section in partnership with NCSU’s Department of Crop & Soil Sciences and the Southeast Chapter of the International Erosion Control Association (SE-IECA). This webinar series is meant to educate and familiarize design professionals, contractors, developers, and local governments with new erosion and sediment control requirements and practices.

The virtual format of this year’s workshop allowed speakers from all over the state, and even one guest speaker from out of state, to present on a wide range of topics. The webinar presentations averaged 300 attendees per presentation, with a range of 240-350 attending any given presentation. Feedback from the presentations have been overwhelmingly positive, with some even asking to keep a webinar format in the mix in future years because it mini-

mizes travel requirements and better allows people from all over the state to participate. Others missed the opportunity to network with colleagues, but appreciated the effort that went into still holding this professional training given the current social distancing requirements.

Thank you to all of our wonderful speakers and to everyone who participated in this workshop. The workshop materials, including recordings and presentations slides, can be accessed on the 2020 E&SC Design Webinar Page:

<https://deq.nc.gov/news/events/2020-nc-erosion-sediment-control-design-workshop-webinar-series>

Please note that PDHs are not being awarded for watching the recordings; they were only awarded to registrants who attend the live webinars.

Future workshop dates will be posted to <http://deq.nc.gov/E&SC> and registration information will be available at <https://events.reporter.ncsu.edu/innovative-erosion-and-sediment-control-design-workshop/>

If you have any topic suggestions/requests for future programs, or you would like to present, contact the [Sediment Education Specialist](#).

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 the 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 they remain Director. The chairman of the SCC is named by the Governor.

Chair:

Dr. Susan White

Water Resources Research Institute

Commissioners:

Ms. Susan Foster

NC Home Builders Association

Ms. Marion Deerhake

NC Environmental Management
Commission

Mr. Michael Taylor

Associated General Contractors

Mr. Michael D. Willis

NC Soil and Water Conservation
Commission

Mr. Benjamin Brown

NC League of Municipalities &
Association of County Commissioners

Dr. Rich McLaughlin

NCSU, Dept. of Soil Science

Mr. Mark Taylor

Professional Engineers of NC

Mr. Hartwell Carson

Non-governmental Conservation

Ms. Emily Sutton

Non-governmental Conservation

Ms. LeToya Ogalla

NC Public Utilities

Mr. Robert Jason Conner

NC Mining Commission

NC Sedimentation Control Commission: August Actions

At its virtual meeting on August 11, 2020 the NC Sedimentation Control Commission (SCC) took the following actions:

Model Ordinance Update

Deferred the vote to re-adopt the model ordinance until the November meeting to allow DEMLR staff time to make the requested changes.

Committee Nominations & Topics

Discussed the current list of nominees and topics for the Commission's Technical Committee and the Education Advisory Committee and are continuing to solicit nominations and topics for both committees.

NC Sedimentation Control Commission: November Actions

At its virtual meeting on November 5, 2020 the NC Sedimentation Control Commission (SCC) took the following actions:

Swearing in of New Members

Emily Sutton, Michael Taylor and Benjamin Brown were sworn into the meeting as new members.

Election of Vice-Chair to the Commission

Ms. LeToya Ogalla was voted to the position of Vice-Chair of the Sedimentation Control Commission.

Delegated Local Programs

- Guilford County: Voted to remove the county from probation and to continue their delegation.
- Town of Wake Forest: Voted to continue delegation authority.

Town of Clayton Ordinance Review

Voted to approve the local ordinance as drafted and adopted by the town's council. Also subsequently voted to delegate authority to the Town of Clayton for administering and enforcing the Sedimentation Pollution Control Act of 1973, after approval of their ordinance.

Model Ordinance Update

Voted to re-adopt the model ordinance with the two administrative amendments as discussed.

The updated model ordinance can be accessed on the Local Government Programs portion of the DEMLR-E&SC website:

<https://deq.nc.gov/about/divisions/energy-mineral-land-resources/erosion-sediment-control/local-government-programs>

Commission' Technical Committee

The Chair provided an update on the progress of soliciting members for the Commission's Technical Committee: resumes are being solicited from the nominees, and the candidates are being evaluated.

2021 SCC Meeting Dates

Tuesday, Feb. 23, 2021

Tuesday, May 4, 2021

Tuesday, Aug. 17, 2021

Thursday, Nov. 4, 2021

All meetings are at 10:00 am
Ground Floor Hearing Room
Archdale Building

512 N. Salisbury Street Raleigh, NC

Schedule and location of meetings is subject to change. Public notice of any changes will be given pursuant to NCGS 143-318.12

DEQ's Environmental Education Distance Learning Initiatives

By Rebecca Coppa, DEQ-DEMLR
Sediment Education Specialist

In this time of continued distance learning DEQ's environmental educators are committed to assisting teachers and students in our state. One of the initiatives the DEQ's environmental educators took at the beginning of the shutdown was to create a Distance Learning webpage for students and educators. The purpose of this page is to introduce you to DEQ's education content that is distance learning compatible. On the page you will find links to free teacher and student materials for distance learning activities focused on several topics including geology, sedimentation, air quality, and water quality. Each of these topics also has additional educational materials and content you can explore by navigating to the Air, Water, Geology, or Sediment Education pages from this Distance Learning page.

DEQ's Distance Learning webpage:
<https://deq.nc.gov/outreach-education/distance-learning>

DEQ's Environmental Education Contacts

DEQ's environmental educators are here to support your distance learning needs during this challenging time. So if you would like to discuss the creation of a customized activity for your classroom, would like a virtual guest speaker, or just have a question about one of our topics, please reach out.

Air Quality (Eastern/Central Region):
Annie Lee
(annie.lee@ncdenr.gov)

Air Quality (Western Region):
Keith Bamberger

(keith.bamberger@ncdenr.gov)

Division of Water Resources (Project WET & Stream Watch):

Lauren Daniel

(lauren.daniel@ncdenr.gov)

Erosion & Sediment Control:

Rebecca Coppa

(rebecca.coppa@ncdenr.gov)

Geology:

Will Blocher

(william.blocher@ncdenr.gov)

Albemarle-Pamlico National Estuary Partnership:

Stacey Feken

(stacey.feken@ncdenr.gov)

N.C. Office of Environmental Education:

Lisa Tolley

(lisa.tolley@ncdenr.gov)

Marty Wiggins

(marty.wiggins@ncdenr.gov)

N.C. Office of EE

The NC Office of Environmental Education and Public Affairs serves as a clearinghouse for all the environmental education resources in North Carolina. The office also manages a nationally recognized professional development program that certifies educators in environmental education.

<https://www.eenorthcarolina.org/>

E&SC Education Packets are Available Online

Packets for Professionals :

Designer Sediment Info Packet
Inspector Sediment Info Packet
Planner Sediment Info Packet

Packets for Students & Teachers :

Student/Teacher Info Packets
Erosion Patrol - 3rd Grade
Where is All Our Soil Going?
- Middle School

<https://deq.nc.gov/E&SCedu>

DEQ's Current Operating Procedures

Based on the current guidance to minimize the spread of COVID-19, the Department of Environmental Quality has adjusted operations to protect the health and safety of the staff and public. Many employees are working remotely or on staggered shifts. To accommodate these staffing changes, **all DEQ office locations are limiting public access to appointments only.** Please check with the appropriate staff before visiting our offices, as we may be able to handle your requests by phone or email. The wearing of face coverings is required in all of DEQ facilities, and should be worn in all public areas / areas where you are not able to maintain appropriate social distancing. Inspections are being conducted as normal with appropriate safety measures in place.

Remember to follow the 3 Ws:

Wear a cloth mask over your nose and mouth, Wait 6 feet apart and Wash your hands.

SlowCOVIDNC

On September 22, 2020, NC DHHS launched the [SlowCOVIDNC Exposure Notification App](#). This app will help North Carolinians in slowing down the spread of the virus by alerting them when they may have been exposed to someone who has tested positive for COVID-19. It is completely anonymous and does not collect data, store or share personal information or location data. This app is free and can be downloaded from the [Apple App Store](#) and the [Google Play Store](#). To learn more about SlowCOVIDNC, view a [training demonstration](#) or visit [NCDHHS SlowCOVIDNC](#).

Testing Alternative Devices

By Dr. Rich McLaughlin, NCSU

Originally Published in IECA's *Environmental Connection's Magazine*, October/November's edition, Volume 14, Issue 4, p. 8-9

If you have ever attended conferences such as the IECA Annual Conference and Expo, you know there are a lot of different products designed to retain sediment on the work site. Which one is the best for your application depends on a lot of factors, but it helps if there has been some form of testing to indicate the performance of the product. Even better, how do several alternatives for the same type of system perform under the same conditions? That is what a couple of recent studies tested, one suggesting how the materials performed and why, the other suggesting a more practical, less expensive option than the standard. It is probably fair to say that most construction sites deploy silt fence somewhere on the

project. A recent study investigated the effectiveness of different fabrics used as silt fence and proposed how each functioned¹. The geotextiles tested were a non-woven needle-punched, a non-woven spunbound, a woven monofilament with wide filaments, a woven monofilament with narrow filaments, and a woven monofilament with narrow filaments woven with decreasing density toward the top of the silt fence. These were placed at the end of a flume which was 0.9 m high by 1.2 m wide, with a ponding area of more than 1.8 m behind the silt fence. This was deliberately different than the standard design, which doesn't provide for much ponding area. Muddy water was in-

troduced to the flume for a 30-minute simulated runoff period, modeled after a 2-year recurrence storm, with sampling at the top and bottom of the water column as well as the outlet after the silt fence. Sampling continued for another 90 min as the ponded water slowly passed through the material. Three replications of each material were tested. Overall, sediment retention was quite high, ranging from 87-98%, with the non-wovens retaining slightly more than the wovens, likely due to slower flow rates and clogging. Among the three wovens, there was no difference in flow through the material during the testing. Most of the sediment reten-



Example of flow through silt fence material in the test system devised by Whitman et al. Photo courtesy of Dr. Blake Whitman

tion was the result of settling, although during the drawdown period there was evidence of some filtering. The authors were careful to note that these results are for the newly installed materials, and subsequent events would likely have different results.

In the development of oil and gas resources in the Appalachian basin areas of Pennsylvania and West Virginia, U.S.A., compost socks have been specified by agencies overseeing these operations². However, this material has to be trucked into the area and is relatively expensive. Why not use fresh wood chips generated on the site instead? To answer that question, the authors conducted a

standard test of the socks filled with either compost or fresh, or “woods-run”, wood chips to determine the flow and sediment retention ability of both materials. This involved strapping a section of each type of sock into a test flume and releasing a mix of soil and water into the flume, then capturing all of the runoff and sampling it. The wood chips had higher moisture content and a larger particle size distribution than the compost. The wood chips released more nitrogen than the compost, but the compost released more phosphorus and potassium; neither was considered to be a problem in field applications. Neither flow rate nor filtering efficiency were different between the sock filled with compost or wood chips, with about 78% of the sediment retained. As others have found, there was a strong relationship between the flow rate and the sediment retention rate, with high flows resulting in lower retention. The authors suggest that “woods-run” chips could be used for sock filler material with considerable cost saving and reduced truck traffic at no loss of performance.

¹Whitman, J. B., W. C. Zech, and W. N. Donald. 2019. Improvements in small-scale standardized testing of geotextiles used in silt fence applications. *Geotextiles and Geomembranes* 47: 598-609. <https://doi.org/10.1016/j.geotextmem.2019.04.002>.

²Grushecky, S. T., L. M. McDonald, and L. Osborn. 2019. The use of woods-run chips in filter socks to control erosion and sedimentation during petroleum development in the Appalachian Basin. *International Journal of Sediment Research* 34: 608-615. <https://doi.org/10.1016/j.ijsrc.2018.12.001>.

Now Available on Our Forms Page: A Standardized Plan Set for Small Residential Lot Development

Julie Coco, PE, CPESC
DEQ-DEMLR State Sediment Program Engineer

A standardized plan set for small residential lot development is now available on the Forms page of the Erosion and Sediment Control website. This plan set includes erosion and sediment control measures common to lot developments along with typical plan view layouts for previously graded lot pads, details for erosion and sediment control measures, a construction sequence, waste management requirements, self-inspection requirements, seeding recommendations, and groundcover deadlines. The title sheet includes the terms under which this standard plan set can be used. Links to 8.5 x 11 (PDF) and 11 x 17 drawings in both CAD and PDF formats are available. These standard erosion and sediment control plans satisfy all state and federal requirements, and can be reviewed under DEQ’s regular or Express Review option. The usual fees, forms, and the additional documentation noted must accompany these plans when applying for an erosion control plan approval through a DEQ regional office.

E&SC Forms Page:

<https://deq.nc.gov/about/divisions/energy-mineral-land-resources/erosion-sediment-control/forms>

Who Do I Call?

If you have questions or concerns related to erosion and sedimentation control or off-site sedimentation from construction in NC contact the appropriate local program, regional office, central office or the toll-free hotline.

Local program information:

<https://deq.nc.gov/about/divisions/energy-mineral-land-resources/erosion-sediment-control/local-government-programs>

Toll-Free Hotline:
1-866-STOPMUD



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

Asheville Regional Office

Phone: (828) 296-4500

Regional Engineer:

Stanley Aiken

Fayetteville Regional Office

Phone: (910) 433-3300

Regional Engineer:

Tim LaBounty

Mooresville Regional Office

Phone: (704) 663-1699

Regional Engineer:

Zahid Khan

Raleigh Regional Office

Phone: (919) 791-4200

Regional Engineer:

Bill Denton

Washington Regional Office

Phone: (252) 946-6481

Regional Engineer:

Samir Dumpor

Wilmington Regional Office

Phone: (910) 796-7215

Regional Engineer:

Dan Sams

Winston-Salem Regional Office

Phone: (336) 776-9800

Regional Engineer:

Tamera Eplin

Raleigh Central Office

Archdale Building

Phone: (919) 707-9220