Erosion and Sediment Control for Small Developers and Homebuilders

-E. Gray Stanley, NCDEQ Intern

https://stormwater.pca.state.mn.us/index.php/Temporary_construction_erosion_and_sediment_control

https://water.unl.edu/stormwater/erosion

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What is the issue?

- Erosion and deposition of sediment is one of the highest contributing factors to pollution in NC waterways
- Erosion is the detachment and movement of soil or rock by water, wind, or ice
- Sedimentation is the process by which soil particles or rocks that have been picked up by water, wind, or ice are deposited
- The major problem associated with erosion on a construction site is the movement of soil off the site, its impact on water quality and its deposition on adjacent land/properties

Examples of Sedimentation

https://www.thedailyworld.com/nation-world/nasa-can-see-dark-polluted-carolina-rivers-spilling-into-the-ocean/

https://hawriver.org/protect-the-haw-watershed-from-sediment-pollution/

https://chattahoochee.org/gtdo/impacts-of-erosion-sedimentation/

https://www.blueridgenow.com/story/news/2017/01/29/wheels-moving-to-remove-lake-adger-sediment/22582602007/

Sedimentation examples continued

Erosion and Sediment from Small Developers

https://www.usgs.gov/media/images/sediment-runoff-a-typical-construction-site-san-antonio

https://www.cityofames.org/government/departments-divisions-i-z/public-works/construction-erosion-and-sediment-control

https://soildistrict.org/new-soil-erosion-and-sediment-control-standards-for-new-jersey/

What are the laws?

- The Sedimentation Pollution Control Act (SPCA) of 1973
- It was created to prevent pollution by sedimentation while still allowing development within the state of North Carolina.
- This is the enabling legislation that gives authority to the Sedimentation Control Commission (SCC) and the Land Quality Section (LQS)-Erosion and Sediment Control Program
- The Clean Water Act of 1972, which is the basic structure for regulating discharges of pollutants into the waters of the United States

What is my responsibility as a homebuilder or small developer?

An erosion and sedimentation control plan must be submitted at least 30 days before land disturbance begins on any site 1 acre or larger

If you discharge from a point source into the waters of the United States you need an NPDES permit NPDES Construction Program | NC DEQ

NPDES (National Pollution Discharge Elimination System), created in 1972 by the Clean Water Act, is a permit program authorized to state governments by the EPA to perform permitting, administrative, and enforcement aspects of the program

Your local government E&SC programs may have more stringent requirements (such as acreage), so developers should always check what jurisdiction their project falls under

What steps do I take?

Complete a SWPPP (Stormwater Pollution Prevention Plan). This is required by your construction general permit and will help you prevent stormwater pollution. Completing the E&SC plan and associated documents is the first part of completing the SWPPP.

This includes the actual ESC plan, the Plan Checklist for Designers, the FRO (Financial Responsibility Ownership form), the Fee Check, the narrative, calculations, construction details, and schedule. Forms are found at Erosion and Sediment Control Forms | NC DEQ This is required by your construction general permit and will help you prevent stormwater pollution (For an example refer to the NC ESC Design Manual Erosion and Sediment Control Planning and Design Manual | NC DEQ)

After receiving E&SC Plan approval, the next step is to fill out and submit an electronic Notice of Intent (e-NOI) form to receive a Certificate of Coverage (COC) under the NCG01 Permit, found here New Submission (nc.gov)

A SWPPP is more than just a sediment and erosion control plan. It describes all the construction site operator's activities to prevent stormwater contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water ACT.

BMP (Best Management Practices) for E&SC- Silt Fences, Curb protection and Basin

https://eastcoastsitework.com/services/silt-fence/

Curb Protection Wattle-https://www.environmental-expert.com/products/high-flow-filter-334482

Above-Inlet Protection Wattle-https://tnepsc.org/page.asp?ID=12

erosioncontrol.okstate.edu/comprehensive-erosion-prevention-and-sediment-control-practices

Wattles around perimeter of site – Photo Credit NCDEQ Staff

Entrance/Throughway Mats –D. Pearson retired NCDOT

BMPS- Wattles and Construction Entrances/Throughways

Baffles 1,2 and 3- This basin is a good example of the baffles functioning as water cleared as it moved toward the skimmer. Photo Credit NCDEQ Staff

BMPs- Baffles

BMPs- Skimmer and Stockpile

This is a good example of a stockpile that has been seeded and surrounded with silt fencing. A small portion of the pile is being worked and put into the dump truck to the left – just enough dirt for what is needed for that day. The remainder of the pile is stabilized. Photo Credit NCDEQ Staff

This is an example of how the skimmer should not be resting on the basin bottom. It should be resting on the rock pad to its left. Presumably when there was some water in the basin, the flexible arm rested upon the small plastic piece of pipe they were using as a low-water prop. As the basin drained, this large skimmer floated over to one side and fell off this stand. The purpose of the rock pad is to keep the skimmer out of the mud to where it can float again and not be stuck once water re-fills the basin. (This one does not look stuck, but nevertheless is still misplaced.) The skimmer is connected to a concrete riser. Photo Credit NCDEQ Staff

BMPs-Diversion Ditch and Outfall

Diversion Ditch- Diversion ditch being used as a slope break. Steep slope to the left is properly graded with tracks perpendicular to the contours. Rock check dams assist with slowing the velocity. This breaks the slope such that the now shorter slope to the right provides for smaller drainage areas to the perimeter silt fence. Photo Credit NCDEQ Staff

Outfall- A good example of a clean water diversion ditch outfall. You are looking upstream. The pipe outlets to a rip-rap ditch, but this one is unique in that there are two built-up rock dams assisting with velocity control as it comes down the slope towards the foreground and off the site. Photo Credit NCDEQ Staff

Sources

- Erosion and Sediment Control Planning and Design Manual | NC DEhttps://deq.nc.gov/about/divisions/energy-mineral-and-land-resources/erosion-and-sediment-control/erosion-and-sediment-control-planning-and-design-manual
- NPDES Permit Basicshttps://www.epa.gov/npdes/npdes-permit-basics | US EPA
- A company clear-cut vast tracts of mouhttps://ncpolicywatch.com/2022/02/25/a-company-clear-cut-vast-tracts-of-mountain-forest-jeopardizing-the-survival-of-a-beloved-unique-trout/ntain forest, jeopardizing the survival of a beloved, unique trout | NC Policy Watch
- NCSU-presentation-1.20.22.pptx (https://www.epa.gov/npdes/npdes-permit-basicssharepoint.com)
- Erosion andhttps://deq.nc.gov/about/divisions/energy-mineral-and-land-resources/erosion-and-sediment-control Sediment Control | NC DEQ
- Erosion, Sediment, and Turbidity Control | Crop and Soil Sciences | NC State University (ncsu.edu)
- Erosion and Sediment Contrhttp://www.littlealamancecreek.com/pollution-prevention-and-reduction/erosion-and-sediment-control/ol - Little Alamance CreekLittle Alamance Creek
- NC State Extension Publications | Browse by Author: https://content.ces.ncsu.edu/catalog/author/6995/rich-mclaughlinRich McLaughlin (ncsu.edu)