

It's Just Dirt

May 2024



AN OUNCE OF PREVENTION
WORTH A POUND OF CURE

Exceptional Projects Earn Stormwater Clean Award

Appalachian Power Regional Distribution Center

Roanoke County's Department of Development Services awarded Appalachian Power its second prestigious Stormwater Clean Award for exceptional environmental efforts.

This year's honor recognized Appalachian Power for its focus and efforts constructing the company's Regional Distribution Center located at 1810 Loch Haven Drive in Salem. The electric utility received its first Stormwater Clean Award in 2021 for its efforts during construction of the Glenmary Substation project, located at 5495 Corporate Circle, also in Salem, VA.

Appalachian Power has become adept at enlisting the right team of professionals to minimize erosion, contain sediment on the project, and manage compliance efforts with Virginia's stormwater regulations. County inspector Michelle Donohoe noted the stellar work efforts of the project team, including Avis Construction, Bowman Excavating, and Parker Design Group. This project benefited from early application of construction road stabilization throughout the work area, prompt stabilization of bare soils, and excellent management of



Appalachian Power earned a second Stormwater Clean Award, this one for superb compliance efforts at 1810 Loch Haven Drive.

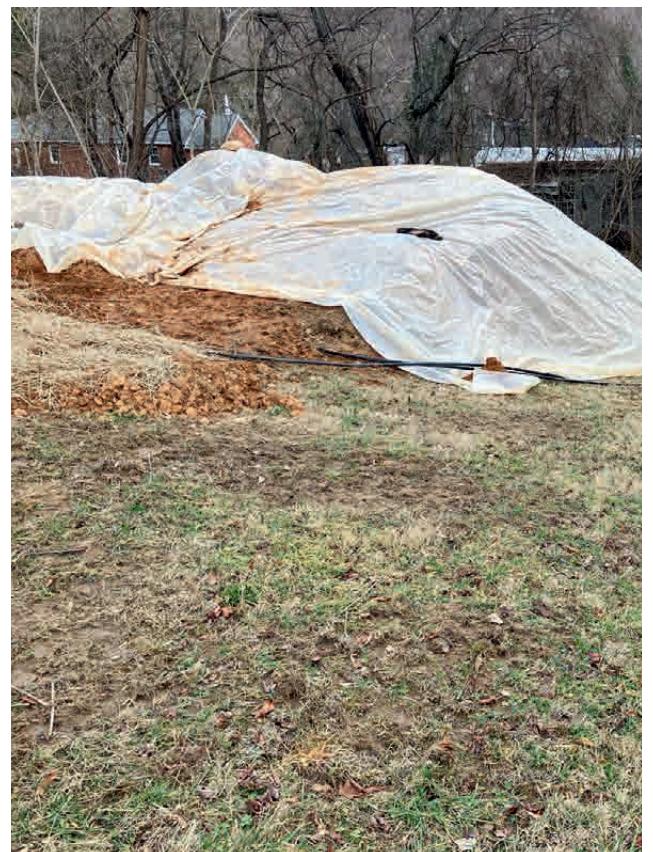
sediment trapping devices. Such efforts and collaboration create a win-win situation where outstanding work is rewarded and local waterways are protected from sediment pollution, which is the end goal. "We are honored to be recognized by Roanoke County," said Larry Jackson, Appalachian Power government affairs director. "We strive to comply with all applicable environmental laws and regulations. Being a good steward of our Earth's natural resources is core to who we are and all we do."



Frame to Finish Construction, LLC Residential Accessory Structures

Frame to Finish Construction, LLC earned the County's prestigious Stormwater Clean Award for its notable environmental work while building several residential accessory structures at 5266 West River Road in Salem, VA. The firm proved exceptionally proactive in its installation and upkeep of erosion and sediment control (ESC) measures. The County inspector, Seth Carswell, said "I never had to ask for any controls to be installed or repaired. In fact, Frame to Finish has the distinguished honor of never being out of compliance with the County's ESC regulations during any of my site inspections." This may well be a first! Mr. Carswell went on to say that "this project is a textbook example of what all projects should look like."

The project hosted a variety of controls to minimize soil erosion, prevent offsite sedimentation, and contain discharges, including early application of straw mulch on all bare soils, use of a tarp to cover the soil stockpile, installation of a concrete washout pit, and construction road stabilization, complete with gravel and mats. Kudos to Michael Lane and his team for a job well done!



Frame to Finish Construction, LLC won the Stormwater Clean Award for impressive environmental work at 5266 West River Road.

Virginia's Construction General Permit to be Reissued

The Virginia Department of Environmental Quality (DEQ) issued its General VPDES Permit for Discharges of Stormwater from Construction Activities, known as VAR10, on July 1, 2019; it remains in effect until June 30, 2024. This permit, often referred to as the "Construction General Permit" or "CGP," authorizes operators of construction activities that disturb one acre or more of land to discharge stormwater to surface waters within the Commonwealth of Virginia, except those specifically named in State Water Control Board regulations that prohibit such discharges.

All discharges covered by this general permit shall be composed entirely of stormwater associated with construction activities. **All other discharges including the following are prohibited:**

1. Wastewater from washout of concrete;
2. Wastewater from the washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials;
3. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
4. Oils, toxic substances, or hazardous substances from spills or other releases; and
5. Soaps, solvents, or detergents used in equipment and vehicle washing.

DID YOU KNOW?

- The current version of the Construction General Permit expires on June 30, 2024.
- Approval to reissue the Construction General Permit for a new five-year term (July 1, 2024 through June 30, 2029) allows land-disturbing activities for construction projects to be covered under a general permit instead of needing an individual VPDES permit after the current Construction General Permit expires on June 30.
- The reissued permit continues requirements in the current permit and adds requirements to be consistent with the construction dewatering turbidity benchmark in the U. S. Environmental Protection Agency's 2022 Construction General Permit. It also clarifies requirements for small construction activity involving single-family detached residential structures.
- To view the final version of the reissued permit, with mark-up, as published in the Virginia Register on March 25, 2024, please visit [Volume , Issue \(virginia.gov\)](http://www.virginia.gov).

¹Virginia Stormwater Management Handbook. <https://online.encodeplus.com/regs/deq-va/doc-viewer.aspx?tocid=001.009.004.002#seid-83>



Provide washout containers to avoid discharging concrete onto the ground.



Cover dumpsters to minimize rain collection and subsequent leaking.



Salem VA 24153
United States

Apply stabilization to all bare soils as soon as possible to prevent erosion.



Use VDOT #1 stone over geotextile fabric for construction entrances to prevent sediment tracking onto paved or public roads.

DID YOU KNOW?

- **The Storm Drainage System** was built to collect and transport rain to prevent flooding in urban areas. Anything that flows or is discharged into the storm drainage system goes directly into local creeks or the Roanoke River without any treatment.
- **The Sanitary Sewer System** collects and transports sanitary wastes from interior building plumbing systems to a wastewater treatment plant where the wastewater is treated.
- **Best Management Practices (BMPs)** are methods and practices you can use on your projects such as good housekeeping, spill prevention, secondary containment, and materials management to prevent or minimize pollutant discharges to the municipal storm drainage system.
- **Illegal Discharges** include polluted stormwater, which may contain oil, grease, sediment, trash, bacteria, and debris, and non-stormwater discharges that enter the municipal storm drainage system, contributing to water pollution in area waterways.
- **Urban Runoff** is rain and any other water that passes through and out of developed areas or areas under active construction (from streets, parking lots, roof tops, lawns, etc.) into the storm drainage system and eventually to creeks and other waters like the Roanoke River.

Alternative Erosion and Sediment Control Measures

By Michelle Donoboe

The Virginia Erosion and Sediment Control Handbook (VESCH), commonly referred to as "The Big Green Book," offers a range of options for erosion and sediment control. In addition, with the recent consolidation of Virginia's Erosion and Sediment Control and Stormwater Management Programs, a new handbook is available that provides additional flexibility in choosing from traditional control measures and some new vendor-specific alternative control measures.

CONSTRUCTION ENTRANCES

Temporary construction entrances are engineered to mitigate the transport of sediment onto adjacent paved surfaces. Historically, VDOT#1 stone with fabric underlayment has been the conventional choice for the entrances, which are 12 feet wide x 70 feet long. There are numerous alternative products available to reduce such tracking, including durable reusable mats and heavy duty steel track-out grates, often called shaker plates, rumble plates, or rumble grates.



Reusable FODS (Foreign Object Debris System) Mat <https://getfods.com>



AlturnaMat® (rugged polyethylene mat) <https://www.cabletiesandmore.com/Alturna-Mats-Brand>



RubberForm Trackout Control <https://rubberform.com/product/trackout-control-mat/>

PERIMETER CONTROL MEASURES

Traditional perimeter control measures provided in the VESCH include silt fence, straw bale barriers, and brush barriers. These devices aim to reduce the speed of stormwater flowing to the devices and to capture fine sediment particles carried by the stormwater, thereby allowing cleaner water to pass through the device.

Since the publication of the VESCH, there have been advancements in filter fabric technology resulting in the development of new methods and products. Some of

the alternative products have been tested and proven effective, performing similarly to or even better than traditional silt fence when correctly implemented.

Several of these products are listed below and shown on the next page:

- Filtrexx SiltSoxx®
- Woodchip Filter Berm
- Woven Belted Silt Fence (WBSF™)
- PIG® Trenchless Silt Fence

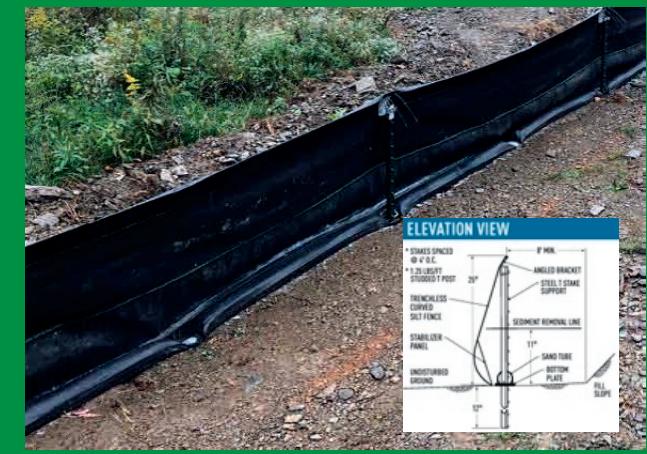
When implementing alternative erosion and sediment control measures, it is important to adhere to current regulations. Also, ensure that the selected measures are appropriate for the intended use, provide applicable details on the plan for the selected measures, and once you obtain County approval of the plan, ensure to install and maintain the alternative measures according to the manufacturer's specifications. Many of the alternative measures are reusable, making them attractive options.



Steel Shaker Plates <https://www.extremeplates.com/copy-of-product-line>



Filtrexx SiltSoxx®
<https://filtrexx.com>



New PIG® Trenchless Silt Fence
<https://newpigenergy.com/app/pig/files-module/local/>



Woodchip Filter Berm
https://stormwater.pca.state.mn.us/images/c/c3/Example_of_a_wood_chip_berm.png



Woven Belted Silt Fence (WBSF™)
<https://siltsaver.com/product/woven-belted-silt-fence-2-stage/>

INLET PROTECTION

Inlet protection serves as the final barrier to prevent sediment from entering storm drains, yet it is often incorrectly installed. Fortunately, contemporary market offerings feature a plethora of durable, easy-to-install alternatives, including a host of curb inlet and drop

inlet protection devices. These innovative products help to ensure that there is a suitable product available to address the specific requirements of any site, thereby enhancing sediment control efficacy and regulatory compliance. To view some of the available products, see the photos shown below.



DANDY SACK™
<https://www.landscapediscount.com/Dandy-Curb-Bag-s/1964.htm>



Silt Saver Frame and Filter Assembly
<https://siltsaver.com/>



NEW PIG® Over-The-Drain Sediment Filter
<https://www.newpig.com/pig-over-the-drain-sediment-filter/p/FLT830>



Ask Us How...

Your Project can win

Roanoke County's

**STORMWATER
CLEAN
AWARD**

Protecting Threatened/Endangered Species

By Cindy Linkenhoker, Michelle Donohoe, Taylor Adkins

The Roanoke River is home to some extraordinary little creatures, including a variety of fish, mollusks, crustaceans, and insects, that are currently considered threatened or endangered species. Because these aquatic creatures depend on the Roanoke River and its tributaries for survival, they are particularly sensitive to the negative effects of sediment pollution and habitat destruction. For example, excessive sedimentation smothers fish and shellfish spawning grounds, alters the

James Spiny mussel (*Pleurobema collina*)

The James Spiny mussel is a federally endangered mollusk that serves as an indicator species of water quality. This freshwater mussel, just under 3 inches in length, is found in both the James and Roanoke River basins, where it feeds and breathes by filtering out bacteria, algae, and other pollutants. This mussel helps keep area waters clean and enjoyable for humans and other aquatic animals, vertebrates and invertebrates alike. Excessive sedimentation is detrimental to its survival, because the James Spiny mussel needs a silt-free bottom to attach itself.¹

Dixie Cavern Salamander (*Plethodon dixi*)

The Dixie Cavern Salamander, a close relative of the Wehrle's Salamander, is found in Roanoke County's Dixie Caverns and Masons Creek. Because this species is so newly recognized (2019) as an at-risk species, it does not have a state or federal conservation status. This amphibian is most threatened by deforestation, so maintaining strict limits of land disturbance will help minimize impacts to this tiny treasure.

Chowanoke Crayfish (*Faxonius virginianus*)

The Chowanoke Crayfish is fairly small, measuring only 2-1/2 inches in adulthood. It is native to the streams and rivers of the Chowan and Roanoke River basins in Virginia and North Carolina. It is typically found in clean, slow-moving streams that meander through swamps and forests. The Chowanoke Crayfish is a state listed vulnerable species. Excess sediment can restrict its ability to burrow, which can be fatal for this crustacean in periods of drought.²

diversity of fish populations in waterways, and affects the organisms on which fish feed.

With a little forethought and careful project execution, you can minimize negative impacts to local waterways and the precious creatures that live therein. Simply employ and maintain effective erosion and sediment controls to contain dirt onsite, keep the land disturbance within the approved project limits, and minimize the discharge of pollutants from your site. (See page 4.)



Photo Courtesy of USFWS¹



Photo Courtesy of Aidan McCarthy ©2021



Photo Courtesy of David Weisenbeck © 2021

Roanoke Logperch (*Percina rex*)

The Roanoke Logperch is a freshwater fish about 3 - 6 inches long. It is intolerant of heavy silt cover and embeddedness, because silt smothers its eggs, and it feeds by flipping over unembedded particles with its snout. This darter is found in clear, flowing waters with gravel or sandy bottoms, and it thrives in diverse habitats, where it seeks refuge among submerged rocks and vegetation. The U. S. Fish and Wildlife Service (USFWS) has determined that the Roanoke logperch may no longer be at risk of extinction and is proposing to remove it from the endangered species list. <https://www.fws.gov/>

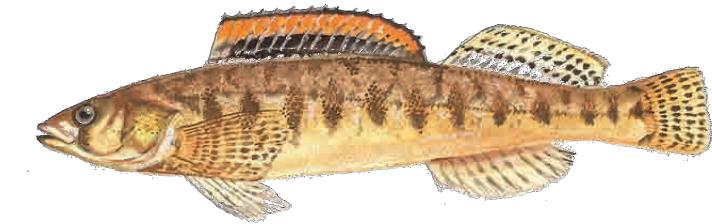


Photo Courtesy of N.C. Wildlife Resources Commission¹

Roanoke Bass (*Ambloplites cavifrons*)

The Roanoke Bass is a small freshwater fish celebrated for its unique markings and vibrant colors. It ranges in size from 6 - 14 inches, and it possesses the remarkable ability to change colors based on its environment, camouflaging itself to seamlessly blend in with the riverbed or vegetation to elude predators or ambush prey. This fish thrives in the Roanoke River's diverse habitats, favoring slow-flowing pools, backwaters, and rocky areas with submerged cover, contributing to the river's overall biodiversity. It faces challenges in the eastern United States from habitat loss, pollution from industrial activities, and climate change that jeopardize its populations.

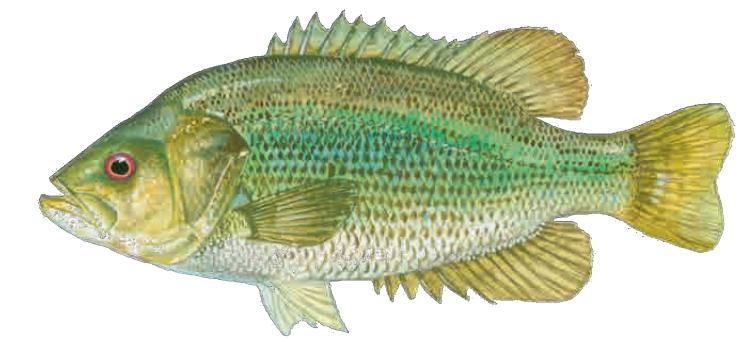


Photo Courtesy of N.C. Wildlife Resources Commission²

Roanoke Hog Sucker (*Hypentelium roanokense*)

The Roanoke Hog Sucker is a freshwater fish ranging in length from 2 - 6 inches. It is distinguished by its strong sucker-shaped mouth, which is well-adapted for bottom-feeding on aquatic insects, algae, and small invertebrates. This fish thrives in the Roanoke River's shallow, rocky areas with moderate to swift currents. Its sucker-shaped mouth allows it to efficiently forage in the substrate, contributing to the river's overall ecological balance. Sedimentation, channel modification, and instream barriers pose threats to the Roanoke Hog Sucker's survival.



Photo Courtesy of N. Burkhead, USGS³

Hellgrammite (*Corydalus cornutus*)

Hellgrammites, the larval form of dobsonflies, are crucial inhabitants of freshwater ecosystems, but they face a significant threat from sedimentation. Excessive sedimentation smothers their rocky habitats, clogs their gills, and disrupts their ability to find prey and evade predators. Furthermore, sediment carries pollutants that accumulate in hellgrammites' tissues, leading to health issues. Mitigating sedimentation through erosion control measures and promoting responsible land management practices are essential to safeguarding these fascinating creatures and preserving the biodiversity of the area waterways.



Photo Courtesy of Joel Sartore. <https://www.joelsartore.com/ins014-00422/>

Caddisfly or 'Sedge Fly' (*Trichoptera*)

Caddisflies are a group of insects similar to the mayfly, with over 370 species being recorded in the state of Virginia. The eggs, larval, and pupal stages of development all occur underwater. These macroinvertebrates are a very common meal for trout and other fish, so they are often chosen by anglers to replicate. Sedimentation is smothering the eggs and larvae of this stable food source, creating greater stress on the fish communities.

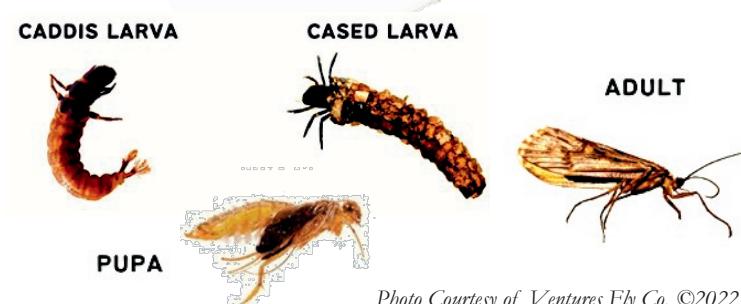


Photo Courtesy of Ventures Fly Co. ©2022

¹USFWS. <https://www.fws.gov/media/james-spiny-mussels-virginia>

²USFWS. <https://www.fws.gov/species/chowanoke-crayfish-procambarus-acerontis>

³iNaturalist. <https://www.inaturalist.org/photos/131044276>

¹N.C. Wildlife Resources Commission. <https://www.ncwildlife.org/Learning/Species/Fish/Roanoke-Logperch>

²N.C. Wildlife Resources Commission. <https://www.ncwildlife.org/Learning/Species/Fish/Roanoke-Bass>

³N. Burkhead (U.S. Geological Survey). <https://nas.er.usgs.gov/queries/FactSheet.aspx?SpeciesID=2905>



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This publication is a public service message brought to you by Roanoke County, Department of Development Services. As regulated by federal and state laws, the County's Stormwater Management Program must include public information strategies to encourage the prevention of stormwater pollution. For other publications or information on ways to prevent stormwater pollution, please call Cynthia S. Linkenhoker, Stormwater Program Manager, at 540-772-2036.



SCAN ME

Clean It Up or Prevent It?

A proper washout device is an affordable and easy way to ensure that your project will avoid costly delays and penalties associated with cleaning up illicit discharges of concrete washout. This material has a pH value of 12.5, similar to that of bleach, making it toxic to plants and wildlife. As such, Virginia's Construction

General Permit (VAR 10) requires that it be directed to a leak-proof container or a leak-proof settling basin. Preventing the discharge in the first place is far cheaper than the associated cleanup, which proves the old adage remains true: "An ounce of prevention is worth a pound of cure!"



A well-installed concrete washout pit keeps its toxic contents out of area receiving waters, ensuring you avoid costly federal, state, and local penalties for failure to contain such discharge.