

Division of Stormwater Management
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This newsletter 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.



Storm Drain Stenciling Program

Stenciling storm drain inlets is an easy way to provide a visual reminder that stormwater goes, untreated, to nearby waterways. And, it is a direct and cost-effective project to remind people not to dump ANYTHING into the drainage system.

Volunteering to stencil storm drains offers an educational, pollution prevention activity with long lasting, positive impacts. Storm drain stenciling is a practical, positive, easy first step toward public education, involvement, and support. Stenciled storm drains will raise citizen awareness and educate the public about stormwater runoff and nonpoint source pollution.

Please Volunteer Today!

☐ YES, I am interested in stenciling storm drains in my community! How many people will be in your group? _____

Name: _____

Address: _____

Phone: _____ Email: _____

I prefer the following stencil:

☐

DUMP NO WASTE

DRAINS TO CREEK

☐

ONLY RAIN

DOWN THE DRAIN

☐

DUMP NO WASTE

DRAINS TO RIVER

Please Return Application to: Cynthia S. Linkenhoker, MPA - Stormwater Program Manager - Roanoke County - 5204 Bernard Drive, 2nd Floor - Roanoke, VA 24018

MARCH 2025: What is Stormwater? Where Does It Go? / FREE Septic Pump-outs / Water Quality Testing / Storm Drain Stenciling / 11th Edition



Roanoke County

Stormwater Guide for Homeowners

March 2025

STORMWATER
Where Does It Go?

What Is Stormwater, and Where Does It GO?

Stormwater is the excess runoff water that comes from precipitation (rain or snowmelt) that runs off of impervious surfaces like streets, driveways, sidewalks, parking lots, and building rooftops. These impervious surfaces block the soil’s ability to absorb precipitation, which creates runoff. As the stormwater travels across these and other surfaces, like lawns and construction sites, it picks up a host of pollutants along the way, such as fertilizers, trash, debris, leaves, litter, pet waste, and sediment, and carries it all straight to the nearest receiving river, creek, or stream. The stormwater travels overland as sheet flow or as concentrated flow in a ditch, swale, or underground pipe, the latter of which collects the stormwater through a storm drain inlet in a parking lot, grassy area, or beside the road.

Unlike household wastewater, which travels from toilets, sinks, and showers to a wastewater treatment plant through the underground sanitary sewer system, stormwater runoff is not treated! Thus, most pollutants that end up on the ground ultimately end up in the area’s local waterways, where they can directly affect water quality. The Roanoke River and most of its tributaries have been negatively affected by polluted stormwater runoff and, as a result, the Virginia Department of Environmental Quality (DEQ) has classified them to be impaired due to three main pollutants: sediment, *E. coli* bacteria, and polychlorinated biphenyls (PCBs). In fact, the County has developed “Total Maximum Daily Load (TMDL) Action Plans” to help minimize these three pollutants from its stormwater runoff.

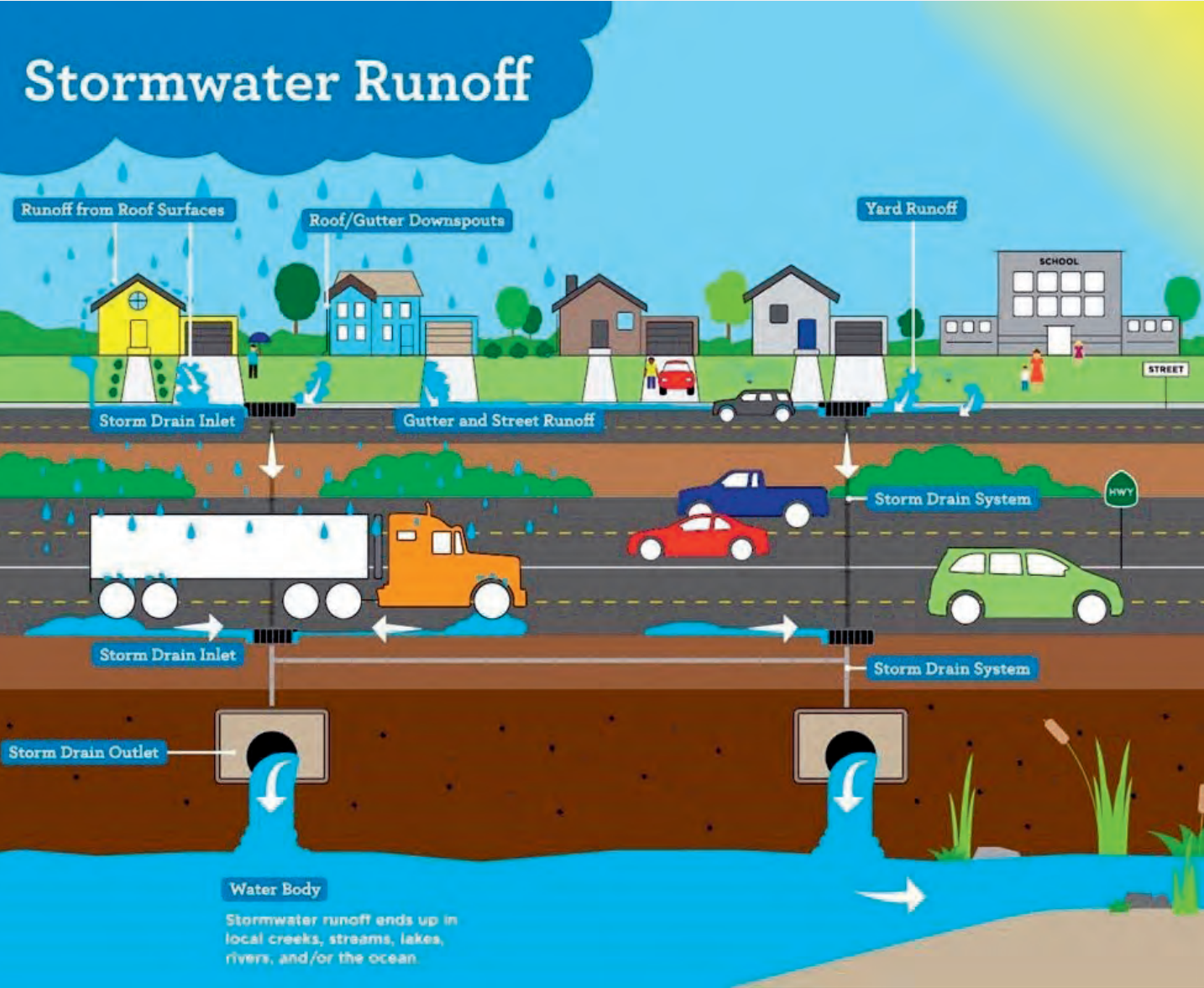


Diagram courtesy of City of Sultan, Washington. <https://ci.sultan.wa.us/187/Stormwater>

As outlined in the TMDL Action Plans, which are available online, the County has committed to a host of strategies that include public education and outreach, employee training, and more. To review these plans, click the links below:

TMDL Action Plans

- [Bacteria \(*E. Coli*\) TMDL Action Plan](#)
- [Sediment TMDL Action Plan](#)
- [PCBs TMDL Action Plan](#)

As part of its public education and outreach efforts, the County prints and distributes publications, such as this newsletter, to raise awareness about these three pollutants of concern and to offer ways to help reduce them.

See the Quick Tips below for some easy things YOU can do to help eliminate pollution in stormwater runoff.

| QUICK TIPS To Reduce Stormwater Pollution | |
|--|--|
| BACTERIA | <ul style="list-style-type: none">• Bag pet waste; dispose of it in the trash• Repair failing septic systems• Pump out septic tanks every three years• Refrain from feeding wildlife, including geese• Cover garbage cans; don’t rinse on pavement |
| SEDIMENT | <ul style="list-style-type: none">• Cover bare soils with mulch or seed & straw• Reseed as needed to maintain a thick lawn• Repair eroded lawn areas• Direct car wash water to grassy areas for filtration and infiltration• Maintain vegetated buffers along backyard streams |
| PCBs ¹ | <ul style="list-style-type: none">• Do not burn wastes containing PCBs• Do not dump wastes containing PCBs• Properly replace all fluorescent light ballasts containing PCBs• Take precautions during renovations so that building materials with PCBs do not contaminate surrounding surfaces• Use properly trained and licensed contractors to remove, clean up, and dispose of materials containing PCBs |

¹To find out more about PCBs, what they are and where they come from, click here: [PCBs](#).

Stormwater enters drainage inlets along roads or in parking lots or yards where it then travels via underground drainage pipes to local waterways.



Untreated stormwater enters and may foul local waterways by discharging any pollutants it has collected on its travels, including fertilizers, trash, sediment, leaves, litter, cigarette butts, and more.



FREE Septic Pump-Out Program

Roanoke County and the Roanoke Valley-Alleghany Regional Commission (RVARC) partnered using grant funds from the Virginia Environmental Endowment to provide a septic tank pump-out program at no cost for qualified Roanoke County residents.

This grant-funded program aims to reduce the environmental impacts and property damage caused by failed septic systems. Septic systems that have not been maintained are a possible source of nutrient and bacteria pollution that may lead to stream impairments across Roanoke County. Septic systems that fall into disrepair can back up into homes or overflow into yards, creating costly issues for homeowners.

Households with an annual income at or below 200% of the Federal Poverty Line are eligible to apply for this program. Qualifying residents are encouraged to attend an educational workshop, where they can apply for the free pump-out during the event. To find out more, **come to one of the upcoming workshops, or call the RVARC at 540.343.4417, ext. 308.**

Apply For Your Free Septic Pump-out at One of These Workshops:

WORKSHOP #1

Thursday, March 13, 2025

Bent Mountain Center (Gym)

2:00 p.m. - 4:00 p.m.

WORKSHOP #2

Tuesday, March 18, 2025

Hollins Library (Meeting Room)

4:30 p.m. - 6:30 p.m.

WORKSHOP #3

Friday, April 4, 2025

The Brambleton Center (Room 2F)

2:00 p.m. - 4:00 p.m.



FREE
SEPTIC PUMP-OUTS

Apply for your free five-year pump-out today! Qualified applicants will be contacted to schedule their appointment. For more information, call 540.343.4417, ext. 308.



SCAN ME



<https://www.roanokecountyva.gov/2963/Septic-Pump-Out-Program>



Fouling Waterways: Not All Animal Waste is Created Equal

by Michelle Donohoe and Cynthia S. Linkenbaker (ed.)

At first glance, it might seem like all animal waste is the same, but as it turns out, wild animal feces is far different in composition than pet waste and it is much easier on the environment.

Diet Makes a Difference

Wild animals, like deer, bear, raccoons, and coyotes, eat foods found in nature, such as plants, seeds, insects, and other small animals. Their waste is part of a natural cycle, and it quickly breaks down and returns valuable nutrients to the soil. Some wild animal waste even helps plants grow. For example, seeds in bear scat can sprout and spread native plants, which helps the environment by providing plants built to thrive in the specific region.

In contrast, domestic pets, such as cats and dogs, eat processed food that is rich in protein, fats, and added nutrients like nitrogen and phosphorus. While these nutrients may be good for keeping pets healthy, they harm the environment. When pet waste is washed into rivers, lakes, and streams, it releases these excess nutrients into the waterways. This can cause harmful algal blooms, which use up oxygen, kill fish, and make water unsafe for swimming and drinking.

Waste Decomposition: Wild Animals vs. Pets

As mentioned above, wild animal waste breaks down faster because it is made of natural materials already found in the environment. This helps keep ecosystems balanced. Pet waste, on the other hand, breaks down much slower because it contains fats, proteins, and chemicals not typically found in nature.

As pet waste slowly decomposes, it releases harmful bacteria and parasites, such as *E. coli*, *Giardia*, and *Salmonella*. These germs can stick around for months or even years in the soil, waiting to be washed into waterways during rainstorms. Unlike wild animal waste, which generally helps the environment, pet waste introduces pollution that disrupts ecosystems and spreads disease.

The Bigger Problem

The U. S. Environmental Protection Agency estimates that the typical dog excretes three quarters of a pound of waste per day or 274 pounds per year.¹ For Roanoke County, with around 22,000 dogs, this means more than 6 million pounds of fecal material is generated per year.

¹United States Environmental Protection Agency.

That is a lot of poop! But pet waste pollution is more than just a local problem. With millions of pet dogs and cats in the United States producing billions of pounds of waste each year, the cumulative environmental impact is huge. When owners fail to pick up their pet's waste, that waste becomes a source of water pollution, and it fouls streams, lakes, and even drinking water supplies.

How You Can Help

The good news is that everyone can take steps to protect local waterways. Always pick up after your pets and dispose of the waste in the trash. Generally, avoid composting pet waste, as it does not get hot enough to kill harmful bacteria. By properly managing pet waste, it is easy to keep local streams, rivers, and creeks clean and safe for people, wildlife, and pets.



Scat from coyotes and all other wild animals is far different than waste from domestic pets, as it easily breaks down and returns valuable nutrients to the soil. Some wild animal waste even helps plants grow!

DID YOU KNOW?

- The Environmental Protection Agency estimates that the typical dog excretes three quarters of a pound of waste per day or 274 pounds per year.¹
- As pet waste slowly decomposes, it releases harmful bacteria and parasites, such as *E. coli*, *Giardia*, and *Salmonella*, which may pollute local waterways and spread disease. There is a simple solution to avoid these negative consequences: SCOOP THE POOP! Then bag it, trash it. 🐾

Illicit Discharge Detection & Elimination (IDDE) Program

The County of Roanoke, through its Department of Development Services, implements a fairly robust Illicit Discharge Detection & Elimination (IDDE) Program, pursuant to the General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4). This General Permit is issued and enforced by the Virginia Department of Environmental Quality (DEQ), and it is posted on the County’s stormwater website:

<https://www.roanokecountyva.gov/1755/Stormwater-MS4-Permit>

The permit not only allows the County to discharge stormwater into area waterways from its permitted area, but it also requires that certain minimum control measures are employed, including implementation of an IDDE program. The overarching purpose of this program is to find and eliminate illicit discharges into the MS4 system.

The County uses two primary methods in its IDDE Program to detect illicit discharges: (1) Dry Weather Screening, and (2) IDDE Complaint Investigation. These topics will be individually discussed, below.

DRY WEATHER SCREENING

The County of Roanoke annually inspects stormwater outfalls to detect illicit discharges during dry weather (i.e., when the storm drainage system would normally be dry) so that it can initiate appropriate action to eliminate them. The County selects at least 50 storm drainage outfalls within its MS4 area based on the following criteria, in descending order:

- Located within the County’s MS4 permit area
- Drains to an impaired waterway
- Located within 1/10th of a mile from the nearest receiving water

If there is active discharge from the outfall during the inspection, the inspector will perform some basic water quality tests to see if there are any obvious pollutants, such as sediment, detergent, oil, or sewage. If any of these pollutants are detected, the inspector sends a fresh sample to a local lab for further testing. When an illicit discharge is confirmed, the inspector attempts to locate the source of the unauthorized pollutant. Once located, the County inspector works with the responsible party to ensure the illicit discharge is eliminated.



Roanoke County’s stormwater inspector, Daniel Hood, grabs a water sample from an active discharge at an outfall pipe. He then tests the sample for various parameters to determine if it has any possible pollutants, including but not limited to detergent, oil, sediment, or sewage.

IDDE COMPLAINT INVESTIGATION

Roanoke County maintains written standard operating procedures to detect, identify, and address unauthorized non-stormwater discharges, including illegal dumping. As part of this program, Development Services staff respond to and investigate complaints regarding illicit discharges received via email, phone call, submission of the online complaint form, or in-person conversation. Complaints may originate with citizens, business owners, County staff, or other agencies such as DEQ or the Virginia Department of Transportation (VDOT). Once an illicit discharge is verified, the inspector works with the responsible party to ensure the illicit discharge is eliminated.

DID YOU KNOW?

- When illicit discharges are discovered by either of the above methods, the County will use its enforcement authority, if necessary, to compel compliance. (See Roanoke County Code Chapter 24.)
- For each verified illicit discharge, the County reports (1) the source of the illicit discharge; (2) the date that the illicit discharge was observed; (3) whether the discharge was discovered by Roanoke County during dry weather screening, reported by the public, or other method; (4) how the investigation was resolved; (5) a description of any follow-up activities; and (6) the date that the IDDE investigation was closed. The County provides this data to DEQ in the MS4 Annual Report.



DID YOU KNOW?

- There are more than 650 stormwater outfalls within Roanoke County’s MS4 permit area that discharge stormwater runoff into the area’s streams, creeks, and the Roanoke River.
- Roanoke County conducts annual water quality inspection and testing of its stormwater outfalls to search for possible illicit discharges. County staff also identify and document outfalls that need repair or maintenance.
- If an illicit discharge is confirmed, the inspector will investigate the upstream drainage system to attempt to locate the source of the unauthorized pollutant. Once located, the County will work with the responsible party to ensure the illicit discharge is eliminated.



Roanoke County’s stormwater inspector, Daniel Hood, evaluates a water sample from an active discharge at an outfall pipe. His goal is to determine if there are any obvious pollutants in the discharge, such as sediment, detergent, oil, or sewage. Should an illicit discharge be likely, he will arrange for additional testing at a local environmental laboratory. Once an illicit discharge is confirmed, he will locate the source and work with the responsible party to eliminate the illicit discharge.

Surface Water: The “Common Enemy”

Roanoke County staff often receive citizen complaints regarding drainage issues created by neighbors. While this is always a civil matter between the two parties, it is helpful to understand a bit about Virginia’s approach to surface water, which is based on the English “common enemy” rule.

As provided below, the Virginia Surface Water Law allows landowners to take reasonable measures to protect their property from surface water. Owners may grade their land, build upon it, or take preventive measures to protect their property from flooding, but in so doing, they may not injure the rights of another.

VIRGINIA SURFACE WATER LAW
(Reprinted from the Virginia Department of Transportation (VDOT) Drainage Manual)

CONCENTRATION Is the unnatural or artificial collection or convergence of surface waters so as to discharge in a narrower width, and at a greater depth and velocity.

GROUND WATER Is water that collects and/or flows naturally beneath the land surface.

In Virginia, surface water is treated under the English “common enemy” rule which states that the possessor of property can take any measures necessary to protect himself from surface water. It follows that he may turn such water back upon the land of his neighbor or obstruct its flow by changing the surface of his land or by the erection of buildings thereon. However, the right to fight off surface water may not be exercised wantonly, unnecessarily, or carelessly, but is modified by the maxim that one must so use his property as not to injure the rights of another. The casting back of surface waters must be a reasonable use of the land for its improvement or better enjoyment done in good faith, and with such care as not to inflict unnecessary injury. If this standard of conduct is met, resulting injury is without remedy.

An exception to the above-stated rule is that a landowner may not collect surface water by means of an artificial conveyance, i.e., excavated channel, flume, pipes, etc., and discharge it in concentrated form on the property of another. This is true whether or not there has been an increase in the volume which naturally flowed upon the property.

Another exception to the rule is that a landowner may not obstruct a watercourse to the injury of another.

It is to be noted that in the filling of land for the erection of buildings, the landowner may obstruct the flow of water in a depression or swale. However, the Court has held that in the construction of a railroad embankment, reasonable construction practice would require the installation of culverts to permit the passage of surface waters. It is believed that construction of a highway embankment would fall in the same category.

It can be seen from the above that while the construction of a highway must include culverts to permit surface waters to pass, it is not mandatory that a property owner provide culverts when filling his land for building purposes. Recognizing the above poses the problem of obtaining easements to guarantee unobstructed outlets for culverts passing surface waters. This is not necessary when a culvert is placed in a watercourse although it may be necessary if improvement of the watercourse is deemed desirable for the convenience of the Department [VDOT].

When easements are obtained, care must be exercised to avoid discharge of concentrated flow onto the property of the owner below the one from whom the easement is obtained.

Attention is called to the fact that while most states follow basically one or two general laws, i.e., the rule of Roman (civil) law or [the] English “common enemy” rule, there are many modifications. Thus, in reading articles in periodicals, one can obtain various interpretations which do not apply to Virginia.

There are special laws governing impoundments, usage and navigable streams which may in fact be, in the general sense, non-navigable.



Only Rain
Down the Storm Drain

FREQUENTLY ASKED QUESTIONS

What Should I Do When:

My Yard Has a Drainage Problem?

- Redirect water from above and regrade your yard to provide positive drainage away from your home and other permanent structures. For disturbances of 2500 ft² or more, be sure to get a permit from Roanoke County's Department of Development Services.
- Contact an experienced landscaping firm if you need guidance or assistance in completing the work.



Redirect standing water away from houses and other structures.

A Sinkhole Formed in My Yard?

- Sinkholes may indicate failed pipes or karst terrain. Contact an experienced geotechnical firm for guidance on properly filling the sinkhole.
- If the sinkhole happens to be in a public drainage easement, call the County's Stormwater Operations Manager at 540-772-2037.



Sinkholes may indicate failed pipe systems or karst terrain.

My Neighbor Directs Water to My Lot?

- This is a civil matter between you and your neighbor. Try discussing the issue with the neighbor to resolve the problem or seek legal advice from an attorney who is experienced with surface water law.
- To learn more, see page 8 or click here: [Virginia Surface Water Law](#)



Directing concentrated water to your neighbor is a civil issue.

Trees Fall Onto My Creek Bank or Yard?

- As a property owner, you are responsible to provide for tree removal on your property and bank maintenance alongside any natural streams or creeks that cross your property.
- If a neighbor's tree falls on your property, it is your responsibility to remove it.



Property owners are responsible to remove trees that fall on their property, even if it is on a creek bank.

The Roadside Ditch or Pipe is Clogged?

- In Roanoke County, the Virginia Department of Transportation (VDOT) maintains all public roads and the drainage structures within the public right-of-way, including pipes, inlets, ditches, and swales.
- Report clogged or blocked VDOT drainage structures by phone at 1-800-367-7623 or on VDOT's website at <https://my.vdot.virginia.gov/>



The Virginia Department of Transportation (VDOT) maintains all public roads and the drainage structures within the right-of-way.

My Neighbor Puts Leaves in the Street?

- Disposal of leaves and any other debris into the storm drainage system clogs drainage pipes, which leads to street flooding, and contributes to the degradation of the area's receiving streams. Report such discharges to the County's Stormwater Program Manager by calling 540-772-2036.



Discharging leaves or grass clippings into the road or any part of the drainage system (inlets, ditches, etc.) is an illegal discharge.