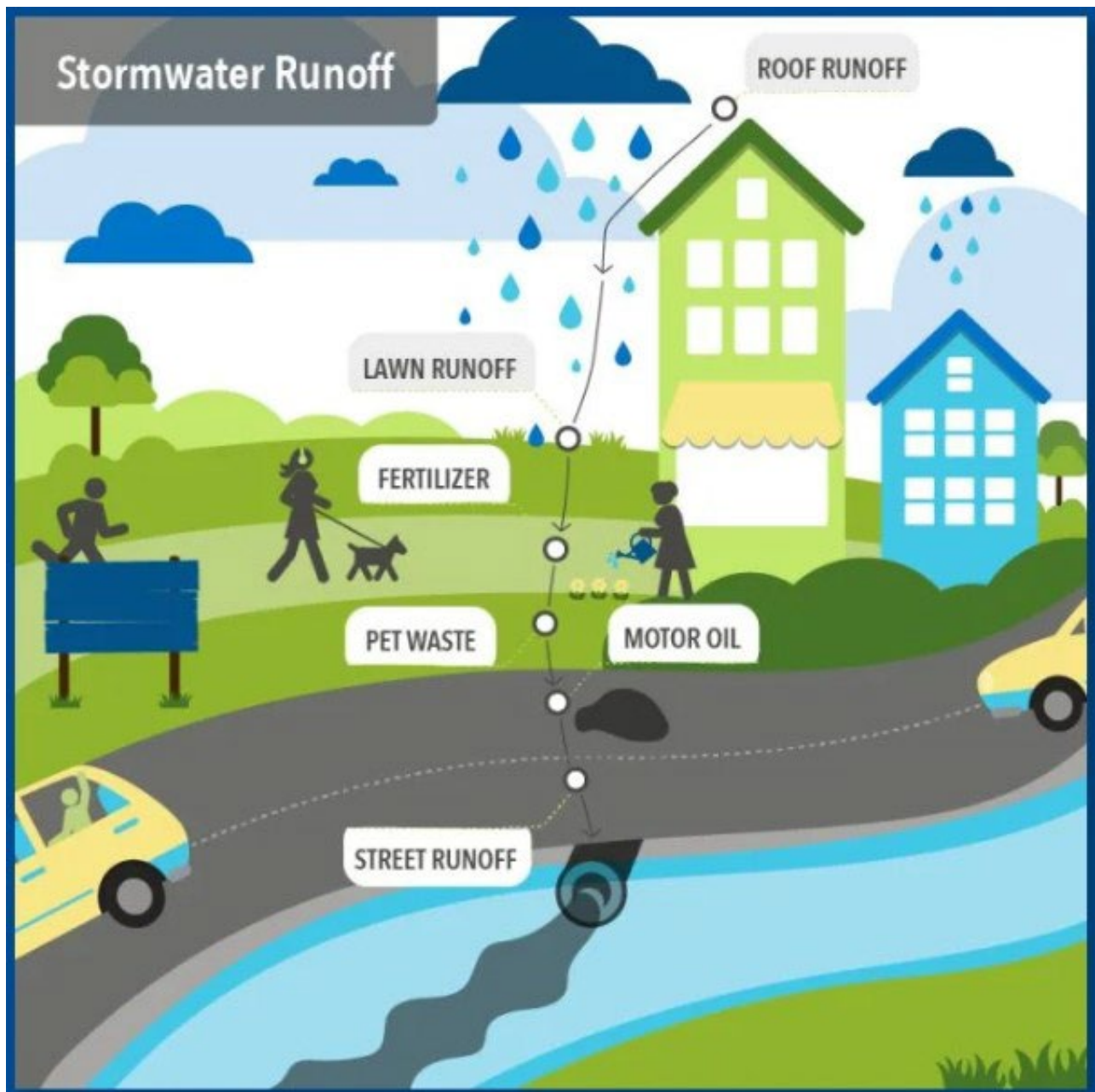


Residential Drainage Guide for Athens-Clarke County



Credit: Metropolitan North Georgia Water Planning District, Atlanta, GA

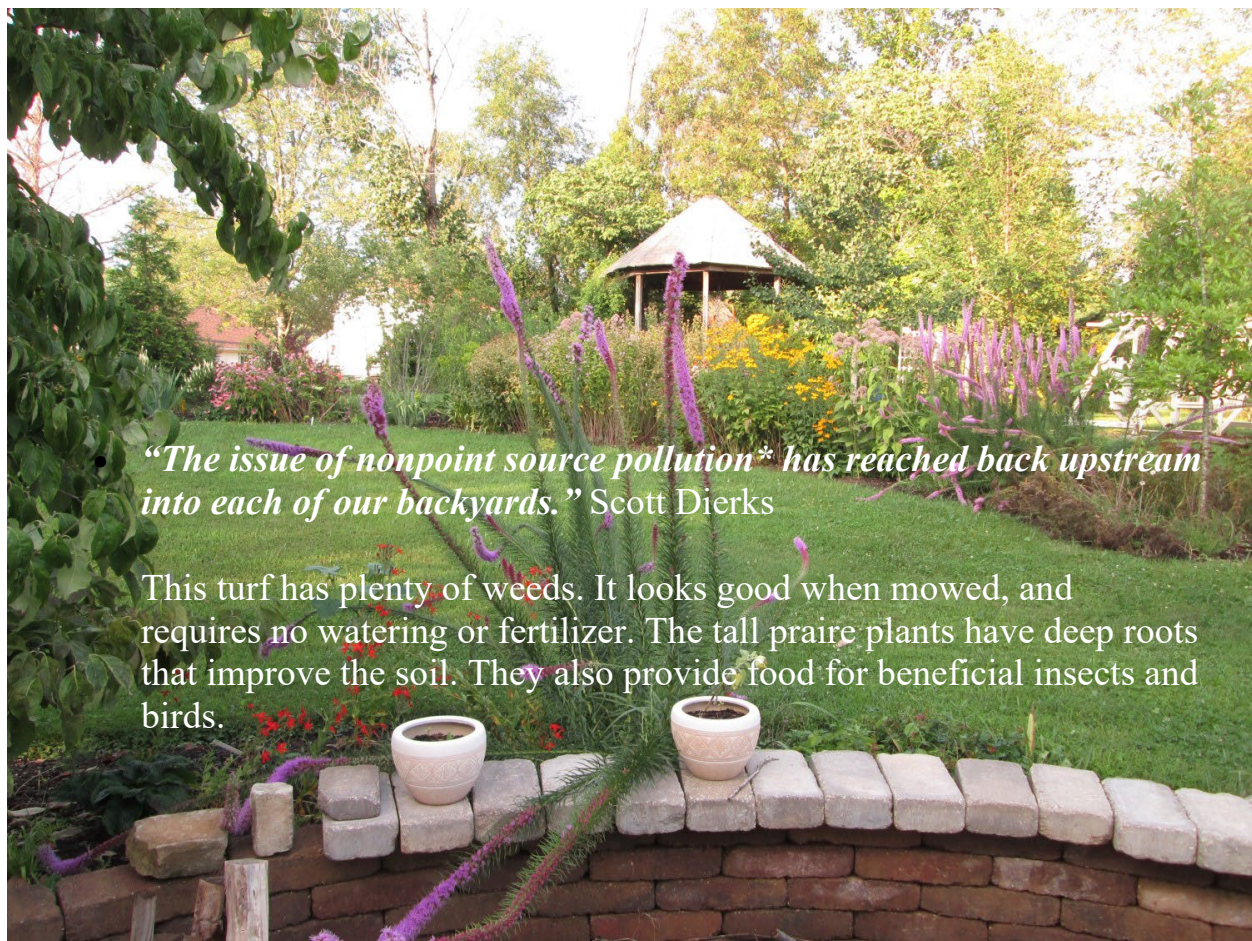
Dear Athens-Clarke County Resident:

Welcome to the Athens-Clarke County Residential Drainage Guide! We're glad you're here to learn how we manage stormwater and how you can help.

In this booklet, we'll show you how our stormwater drainage system works and how you can play a part in keeping it healthy. We see stormwater management as a team effort between Athens-Clarke County government and you, the residents.

Your role can be as simple as keeping drainage ditches in the yard clear of leaves or letting us know if you see a blocked street inlet. This booklet will give you an overview of what to watch for, what actions you can take, and who to call if you spot a problem.

By working together, we can keep our stormwater systems running smoothly. Thank you for taking the time to read and use this guide!



*Nonpoint source pollution is everything that rain picks up as it flows along the ground to a stream.

When it Rains

At the outset of a shower, and during light rains, even the concentrated flow from the roof downspouts and our driveways might all soak into our yards. In moderate storms, some of water from hard surfaces flows across the lawn and out of the yard. The more it rains, even the lawn becomes saturated and can no longer hold water.

The water that runs off carries herbicides, insecticides and fertilizer from our lawn along with leaked oil, antifreeze, and anything else on our driveway to the neighbor's property and into the nearest stream or river. This type of polluted runoff causes problems not only for aquatic life, but for our own health as well. We are about 60 percent water, which is constantly recycled from the environment.

When water soaks into the ground, mostly good things happen. There is an extraordinary amount of life in soil. We just can't see most of it. A teaspoon of healthy soil contains more microorganisms than there are people on earth. More than half of all species live in the soil. These microbes break down pollutants. Plant roots pick up water and send it to leaves where it provides cooling through evapotranspiration. Fungi magnify the impact of plant roots and improve soil structure. Water seeps further down in the soil and sustains streamflow during dry weather. As plants die or leaves fall, they in turn are broken down by microbes in a process that actually builds the soil. This creates a *virtuous cycle* in which the soil becomes spongier. It soaks up even more rain, and supports more life. In the process, carbon dioxide in the air we breathe becomes part of the new soil. Tree leaves intercept rain. Plants support insects, which in turn are consumed by a diverse array of birds, fish and small animals. Different plants support different insects that support different birds and other animals.

All of this happens in our yards.

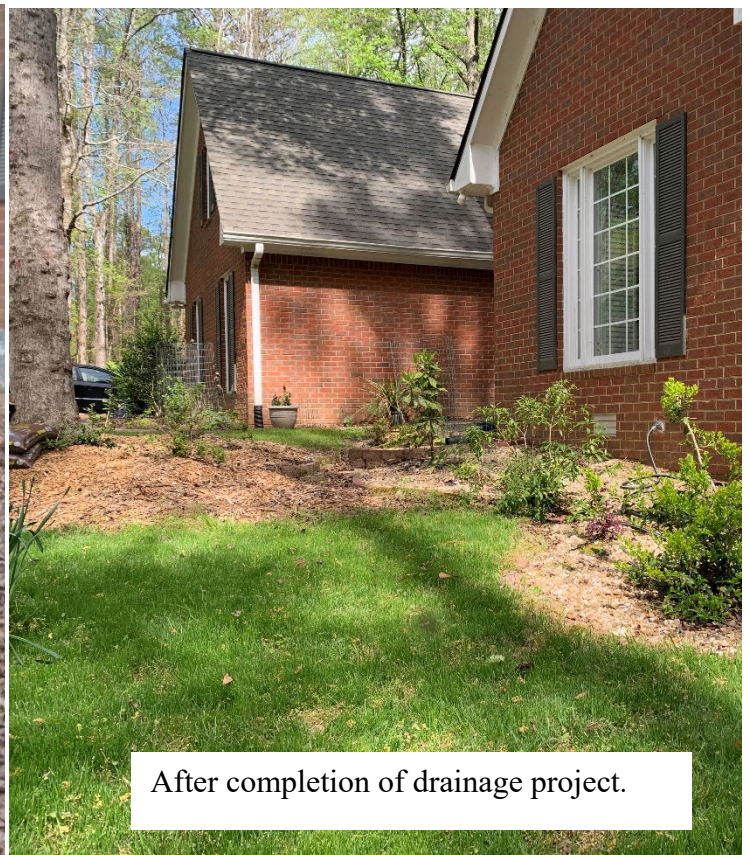
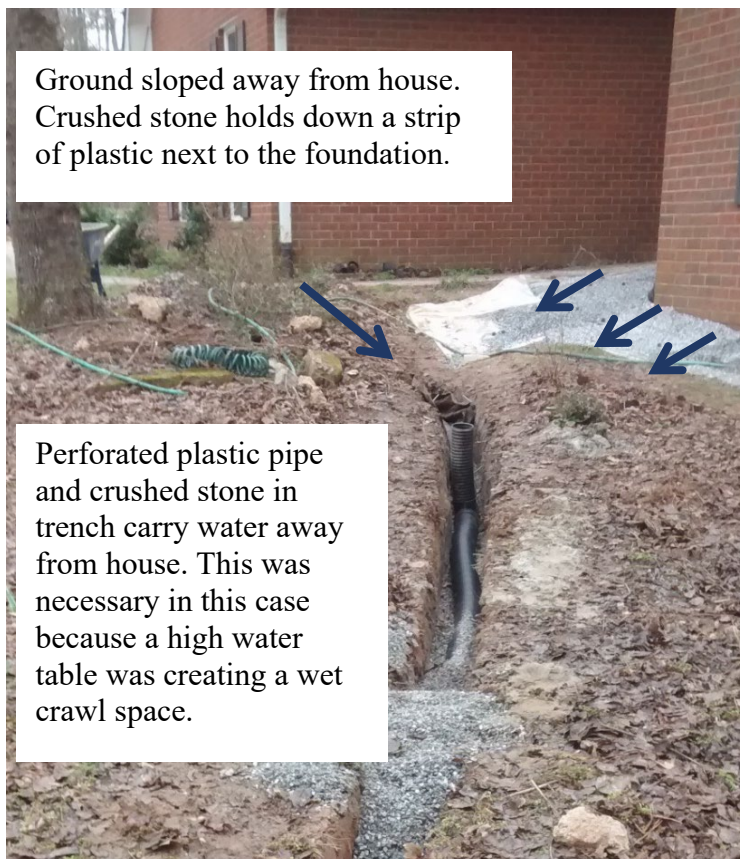


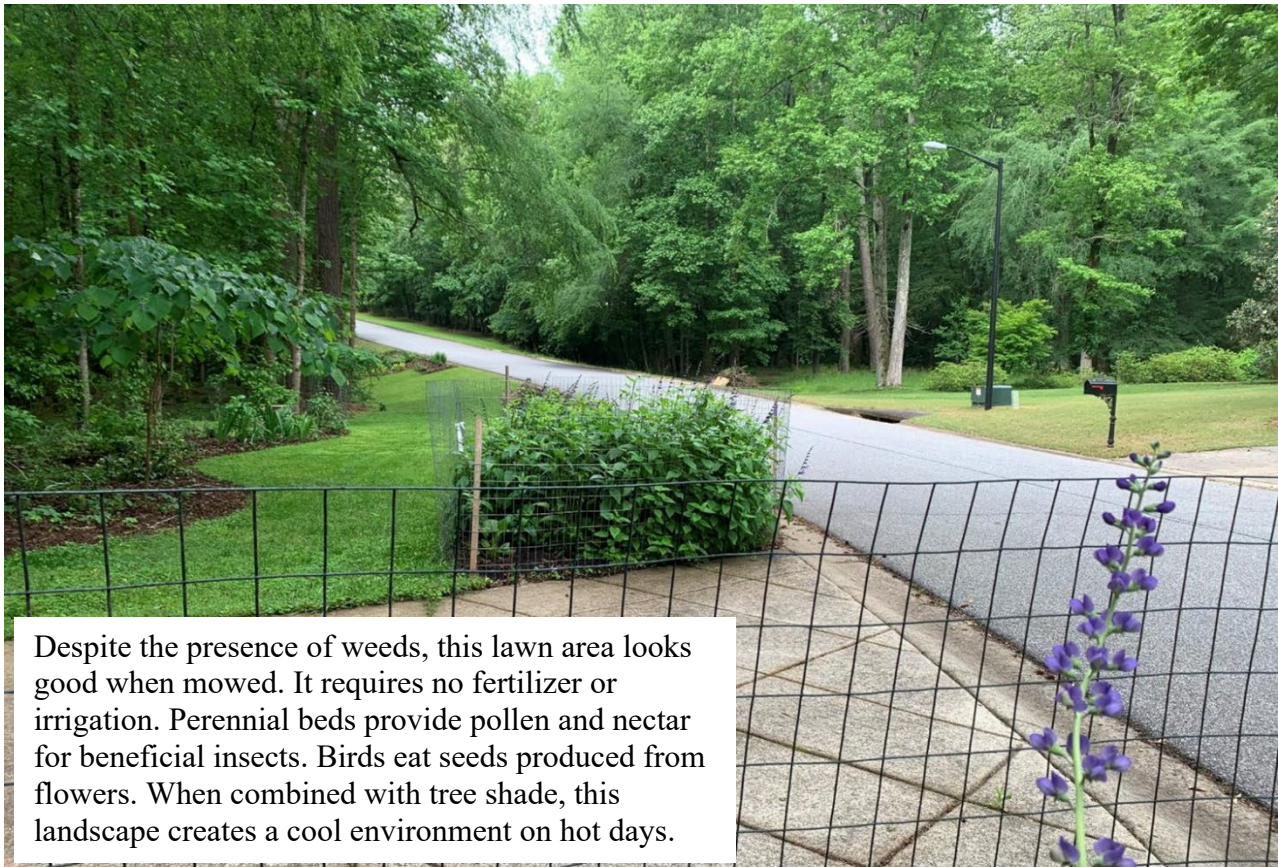
Drainage Problems Affecting the House

We are all understandably concerned about water damage – mainly to homes, sheds, and septic systems. How do we minimize such problems without making things worse for our neighbors or increasing flooding in the nearby creek?

Residents can contact the Stormwater Division of Athens-Clarke County Transportation and Public Works for advice about specific drainage issues where you live. Water runs downhill. Most of the water around our houses is from the rooftop. We can simply slope the ground away from the house for at least ten feet from the foundation. In most cases, home builders have already done this. But there are always exceptions. Look around your house. If there is a continuous slope all the way down to the house, the yard will need to be re-graded so that water runs downhill away from the house.

1. Use splash blocks where downspouts outlet at the foundation.
2. Extend downspouts with plastic pipe. ***Be careful about how far the pipe runs.*** Make sure the pipes ends at least ten feet away from any property line.
3. Sometimes even when the ground slopes away from the house, water gets into the crawl space or the basement. Solutions may involve buried perimeter drains that use perforated pipe and crushed stone to keep subsurface water away from the foundation. Waterproof paint for exterior walls can also be helpful.
4. Not every puddle is a problem. We can become alarmed by water running through our yards in heavy storms. But when the rain stops, what harm has this “river” in my yard created?





- *In the past, we have asked one thing of our gardens: that they be pretty. Now they have to support life, sequester carbon, feed pollinators and manage water.* Doug Tallamy
- *Regardless of federal laws, our local and regional water quality will not be protected unless we take action at home.”* American Rivers
- *“A healthy soil is made by the life dying into it and the life living in it, and to its double ability to drain and retain water we are completely indebted . . . “* Wendell Berry
- *If there is magic on this planet, it is contained in water.* Loren Eiseley
- *Some kids don’t want to be organized all the time. They want to let their imaginations run; they want to see where a stream of water takes them.* Richard Louv
- *If we replant half of the area now in lawn, that will give us 20 million acres that we can put towards conservation – creating Homegrown National Park – the biggest national park in the country, right where we live.* Doug Tallamy

Stormwater Dos and Don'ts in the Yard

DO

- Keep ditches and street gutters clean.
- Sweep/blow gutters and driveways and use leaves as compost.
- Consider natural alternatives to pest control.
- Seed or replant areas of disturbed soil especially on slopes.
- Prevent soil or mulch from being washed or blown off garden.

DON'T

- Rake, blow, or deposit leaves, grass clippings, or trash into drainage ways or roads.
- Use too much fertilizer.
- Hose dirt off hard surfaces.
- Pile sand and soil near storm drains.
- Overuse chemicals like pesticides and herbicides.



Why is My Yard Eroding?

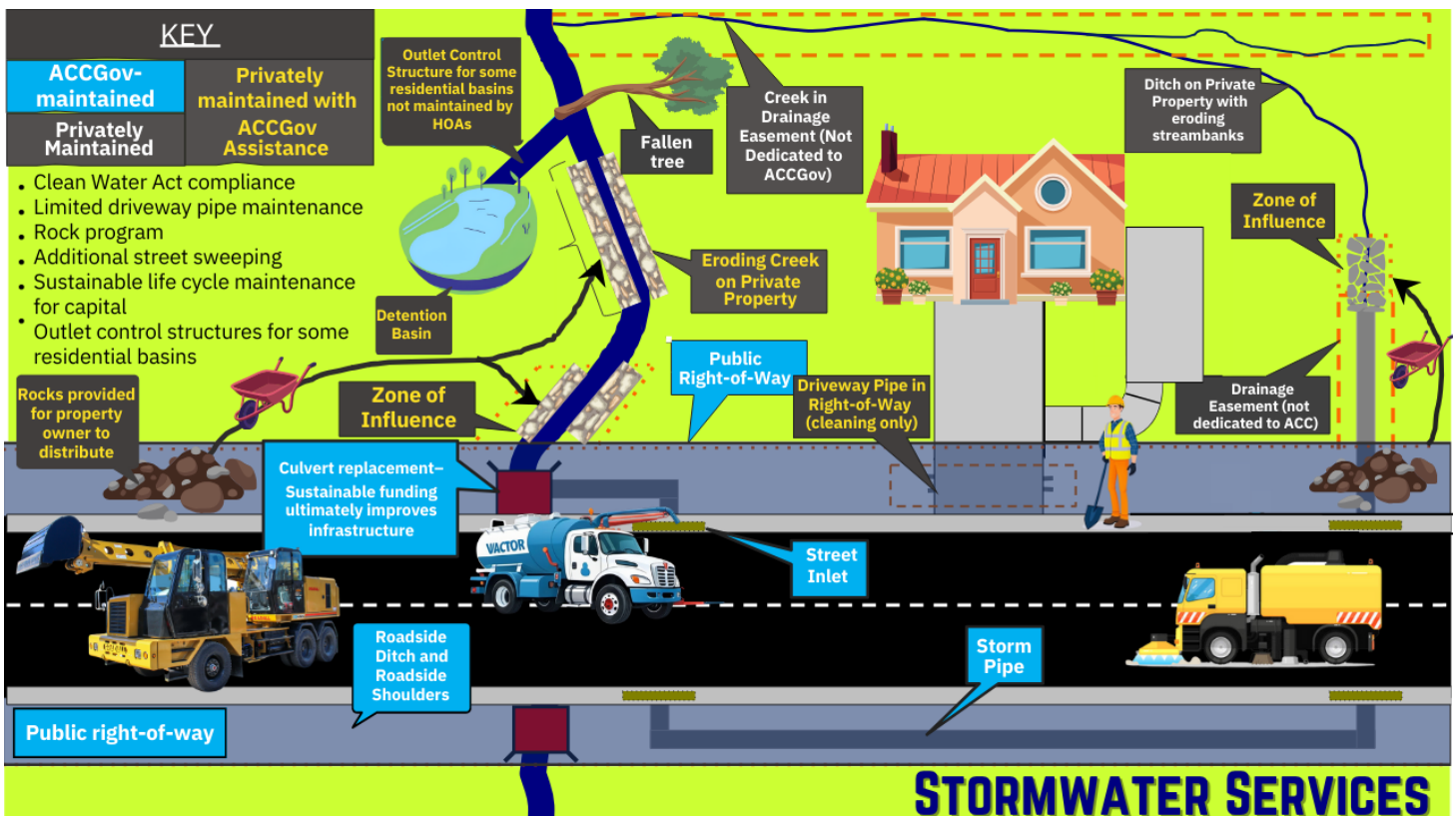
As with any drainage issue in your yard, residents can feel free to contact the Stormwater Division of the Transportation and Public Works Division of Athens-Clarke County for advice concerning specific erosion issues. This could be an eroding streambank. It could be a ditch running across the backyard. There may be more than one approach to correcting the problem. In some cases, Athens-Clarke County can drop off stone rip-rap next to the road for use by property owners to carefully use this stone to stabilize eroding areas.

Because grass next to ditches can be challenging to mow, there may be a temptation to apply herbicides in these areas. We see countless examples of eroding stream and ditch banks next to turfgrass. Planting trees, shrubs, and perennials next to ditches can often correct this problem. Sometimes a mix of rip-rap and plants affords a good solution. Rock may work best at the toe of the slope where water velocity could scour vegetation. Limbs can be anchored to hold streambanks as well.

Dumping tree or shrub limbs and grass clippings into streams does not stabilize streambanks. In fact, just dumping stone rip-rap into ditches doesn't stabilize them either. It usually ends up blocking water and causing flow to go around it – causing further erosion.

Not every puddle is a problem. Puddles encourage water to soak into the ground. When concentrated water from rooftops and driveway runs overland and then suddenly drops into a ditch or creek, mini-waterfalls are created. Erosion occurs. One idea to absorb concentrated flow is called a rain garden. This is an intentional puddle in the yard with plantings that can tolerate wet conditions.

Take a look at the following diagram to see if there might be any assistance that can be provided by Athens-Clarke County. Please contact us with questions.



Rainscaping



We could view stormwater as something to get rid of, but that may not always be beneficial.

Rainscaping allows us to use our yards to slow, capture, and filter stormwater. It not only decreases drainage issues for us and our neighbors, but also improves the health of creeks and rivers.

Athens-Clarke County Solid Waste Department offers leaf and limb pick up every six weeks. A load is defined as 25 paper lawn refuse bags OR a pile of limbs that measures up to six feet long by 6 feet high by 4.5 feet deep, OR a combination of both.

Rain barrels catch and store rainwater for later uses like gardening.

Rain gardens can allow stormwater to soak into the ground within one or two days while also providing host plants and pollen for moths, bees and butterflies.



Who to Contact at Athens-Clarke County Transportation and Public Works

1. Report water pollution concerns in street drains. 706-614-1282 (Stormwater Hotline)
2. Maintenance of street inlets, roadside ditches, and shoulders of ACC maintained roads. 706-614-3468 (Streets & Drainage Division)
3. Stormwater fee questions. 706-614-3989 (Billing in Stormwater Management)
4. Request driveway pipe cleaning. 706-614-3468 (Streets & Drainage Division)
5. Information regarding residential rainscaping, volunteering with ACC Stormwater, advice regarding drainage issues in the yard, requesting rip-rap rock for erosion control.. 706-613-3440 (Stormwater Management)

Cool Things To Do in Your Yard

1. See if you can find a tree seedling that has planted itself in some random location, and find a better place for it in the yard – such as on the south side of the house to provide shade. Oak trees are a keystone species because they support other life forms.
2. Minimize herbicide and lawn fertilizer use. Spot treat or pull weeds when they're small.
3. Slope the ground away from the house foundation, and at the same time be careful not to increase or concentrate runoff to the neighbors. Be careful where sheds are placed.
4. Use a mulching blade on your mower to recycle plant nutrients and build spongy soil.
5. Use fallen leaves as mulch to build spongy soil.
6. To build soil, add compost to it. Solid Waste Management sells compost at the landfill.
7. Trade plants with the neighbors. Look for native Georgia plants that attract pollinators and that can tolerate drought (and rabbits and deer if the yard is not fenced.)
8. Avoid invasive plants like English Ivy that take over.
9. Leave yard puddles as puddles as long as the water soaks into the ground within two days and does not harm the house or other structures. Consider water tolerant plantings.
10. Mulch under trees and plant ferns and understory shrubs to provide “soft landings” that provide critical habitat for moths, butterflies and beneficial insects.
11. Make perennial beds look good by using 1) borders and mulch, 2) shrubs and small trees for structure behind perennials, 3) long blooming plants along with early and late blooming plants and plants with fall leaf color.



What if I Have a Creek in My Yard?

Buffers near streams serve important ecological services. They can help protect public and private water supplies, cool water and air on hot summer days, trap sediment and other pollutants in surface runoff, stabilize streambanks, minimize flood damage, provide wildlife corridors, and furnish scenic and recreational opportunities.

It's a good idea for streambanks to be vegetated – especially with deep rooted shrubs and trees. Mowing up to the edge of streambanks often leads to streambank erosion. In some cases, residents may want to take advantage of the rock program to stabilize eroding streambanks. Keep in mind that all permitting and installation are the responsibility of the property owner. The Georgia DNR has a Streambank and Shoreline Stabilization Manual at <https://easternbrooktrout.org/why-wild-brook-trout/landowner-resources-1/georgia-streambank-and-shoreline-stabilization-manual>.

There are two type of stream buffers in Athens-Clarke County. The State buffer is 25 feet from wrested vegetation for most streams. Within this zone, cutting living trees and other vegetation is typically prohibited, along with grading, filling, dumping lawn debris, or altering the stream.

The Athens-Clarke County buffer is described in Athens-Clarke County Chapter 8-6 (Protected Environmental Areas). This buffer is 75 feet from the banks of most streams, and 100 feet from the banks of most rivers. If you are wondering if an Athens-Clarke buffer exists for your stream, please contact Transportation & Public Works at 706-613-3440.

In this buffer zone, native vegetation shall be retained. Limited non-mechanical clearing of vegetation is allowed provided that the vegetation is less than six inch diameter and not within 25 feet of the streambank. New structures such as pools or decks or other land disturbance activities are not permitted in the Athens-Clarke County buffers without a variance. Home gardens are allowed along with cutting of firewood for personal use provided that no live trees are removed within 25 feet of a streambank.

For larger streams, FEMA may have mapped a floodplain. These maps can be viewed at www.georgiadfirm.com. ***It's critical to understand that FEMA flood maps do not pretend to include all or even most flood prone areas.*** The National Flood Insurance Program, which is managed by FEMA, was set up to provide affordable flood insurance and to encourage communities to adopt floodplain management standards. Since flood mapping is expensive, it has been limited to that which occurs along large streams and rivers. In recent years, entities such as First Street Foundation have been attempting to illustrate flood risk in all areas.

The Athens-Clarke County Planning Department should be contacted prior to any planned work within a FEMA mapped floodplain or the Athens-Clarke County Buffer (706-613-3515). Depending on the scope of the project, permits from the Georgia Environmental Protection Division (706-583-2658) may be required for work within the State buffer. Permits from the U.S. Army Corps of Engineers (912-652-5279) are required for work within wetlands and waters of the U.S.

Nature Doesn't Read Flood Maps

The Capacity of All Stormwater Systems

Can be Exceeded

Making Sense of the Stormwater Fee

Although stormwater utilities have been around since the 1970's, they didn't really start picking up until the early 2000's. This corresponds to a time when local governments were required to implement stormwater management plans to improve water quality in streams and rivers. The Clean Water Act had provided funding for improved wastewater treatment plants starting in the 1970's. The health of rivers started improving almost immediately. But many waterways still weren't meeting the goals of being fishable, swimmable, and drinkable. It was discovered that pollutants from lawns, driveways, streets, parking lots, and construction sites were impairing these waterways.

Another issue that was becoming apparent was that hard surfaces from rapid development were creating more runoff. Not only that, but when development occurred, the dirt that was left over was often a hard subsoil that did not absorb water very well. Streambanks seem to be eroding faster than ever. And local governments across the country are being inundated with residents' drainage concerns.

Our required stormwater management plan addresses stormwater practices in new construction. This includes sediment and erosion control from bare dirt during the construction phase, and installation of long term measures to release stormwater at controlled rates. But what about all of the development that happened before our plan was in place?

In recent years, we have been able to make substantial investments to repair or replace failing stormwater infrastructure to help keep our roads open even during severe storms. It is our job to maintain street inlets and associated storm pipes along with curbs, roadside ditches, and road shoulders. Athens-Clarke County owns and maintains detention basins that moderate flooding, and we inspect private detention basins to ensure that they are operating according to design.

The Clean Water Act anticipated the need to inform residents about stormwater challenges and opportunities that come up in neighborhoods. From this Residential Drainage Guide for Athens-Clarke County, we can see situations that commonly occur in our yards, how to better understand and address these challenges, and who to contact at Transportation and Public Works for advice.

Hard surfaces that prevent rain from soaking into the ground occur on all developed parcels – whether they are taxable or not. The overwhelming majority of Athens-Clarke County residents say that the most equitable way to fund our stormwater management program is for all owners of developed land to contribute. The idea is that everyone pays and everyone benefits. Every dollar paid in stormwater fees goes to stormwater management here in Athens-Clarke County.

The stormwater fee has allowed us to provide an ongoing commitment to public outreach and discourse. We want to hear from you. Informed residents let us know when they see pollutants running into storm drains. People tell us they are concerned about what seems like ever more severe storms. Because the capacity of all stormwater systems can be exceeded, there is a risk of flooding almost everywhere. The good news is that we can become more resilient by preparing for these challenges head on.

It is becoming increasingly clear to residents that smart management of our yards reaps benefits in the long run. We can all work together - often with an assist from nature - to make this happen.



Photo of Easley's Mill in Athens-Clarke County by Erik Hogan

Let's make one thing
perfectly clear –
water.