



Assessing Your Stormwater Management

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The goal of *Home•A•Syst* is to protect your health and the environment from pollutants in and around your home.

The following checklist is designed to help you pinpoint potential problem areas on your property that may

affect the quality of your surface and groundwater. If a statement reflects the current situation in your household, check "Agree." If the statement does not describe your household, check "Disagree."

Agree Disagree

- | | | |
|-----------------------|-----------------------|---|
| <input type="radio"/> | <input type="radio"/> | 1. My household chemicals are stored so that they cannot come into contact with stormwater (water from rain or melting snow that does not soak into the ground). |
| <input type="radio"/> | <input type="radio"/> | 2. I apply fertilizer to my lawn only after testing the nutrient content of my soil, and I never apply fertilizer or pesticides within 24 hours of an expected rain. |
| <input type="radio"/> | <input type="radio"/> | 3. I have my car routinely maintained, and I use pans or matting to catch drips underneath the car while it's idle. |
| <input type="radio"/> | <input type="radio"/> | 4. I never use road salt or other de-icing products. |
| <input type="radio"/> | <input type="radio"/> | 5. I don't allow pet wastes to come in contact with stormwater. |
| <input type="radio"/> | <input type="radio"/> | 6. I compost yard wastes, or sweep yard clippings back onto the grass rather than onto the road or driveway. |
| <input type="radio"/> | <input type="radio"/> | 7. I don't have any paved surfaces (driveway, patio, etc.) around my house. |
| <input type="radio"/> | <input type="radio"/> | 8. I prevent erosion by planting grass or ground cover on any areas of bare soil around my home. |
| <input type="radio"/> | <input type="radio"/> | 9. My basement windows and doors are sealed against leaks. |
| <input type="radio"/> | <input type="radio"/> | 10. My well casing extends at least six inches above the ground, and there are no visible cracks. |

If you disagree with any of these statements, or if you are unsure, you may have a situation in your home that could affect the environment or your health. Refer to the fact section with the same number as that statement (under the heading, “What you should know about . . .”) for more information.

Don’t be alarmed if you disagreed with many or even all of these statements. That does not automatically mean you have a surface or groundwater problem. It may, however, tell you that change is needed to avoid potential problems. In the same way, agreeing with every statement does not mean you are *not* at risk or cannot make improvements.

Why should you be concerned?

Groundwater is the underground water that supplies wells and springs and recharges surface water bodies. It is the source of drinking water for many Tennesseans. **Surface water** includes ponds, lakes, rivers, streams, and other water bodies.

When stormwater flows off rooftops, over paved areas, across bare soil, and through sloped lawns, it collects soil, pet waste, salt, pesticides, fertilizer, oil, grease, leaves, litter, and other pollutants to carry with it on its journey to the nearest body of water. It doesn’t take a heavy rainstorm to send pollutants rushing toward the nearest stream or river—your garden hose provides plenty of water to do the job.

Even if your house is not near a body of water, storm drains, surface ditches, and sewers will carry your pollution until they reach one. Contrary to popular belief, storm sewers do not carry stormwater to sewage plants for treatment.

Polluted stormwater degrades our surface water bodies. Soil clouds water and ruins fish and plant habitats. Nutrients like phosphorus promote excessive growth of algae, which depletes the oxygen that other aquatic life forms need. Toxic chemicals such as antifreeze and oil from leaking cars, carelessly applied pesticides, and zinc from galvanized metal gutters and downspouts threaten the health of the organisms that live in our ponds, lakes, rivers, and streams. Bacteria and parasites from pet wastes can make nearby lakes unsafe for wading and swimming after storms. Stormwater flowing into basements is difficult and often hazardous to clean up. Finally, contaminated stormwater can flow down into a poorly sealed well shaft and pollute your drinking water.

Polluted stormwater can come from every street, parking lot, yard, driveway, and garden in your town. The problem can be eliminated only if everyone makes a conscious effort to control runoff and reduce the amount of pollution he or she contributes to stormwater.

Home•A•Syst is only for your own use and benefit.

It is a voluntary program intended to provide general information about protecting your health and the environment. Information from a *Home•A•Syst* assessment will not be collected by Extension or any other outside agency and should remain in your private records.

What you should know about . . .

1. Household chemicals

Most households have some kind of lawn and garden chemical (weed-killer, insect-killer, fertilizer, etc.) in storage. Swimming-pool chemicals and salt for water softeners can also pose a problem. If stormwater or floodwater reaches these products, it can transport them to surface water or to your well.

Ideally, you should buy only as much chemical as you can use, but if you must store such products, keep them in waterproof containers. Store them on high shelves and out of the path of runoff or floods. If the chemicals are spilled, contain them and clean them up quickly, especially on paved surfaces.

2. Pesticide and fertilizer application

Using more fertilizer than you need invites pollution problems because the excess nutrients can be carried away by stormwater. Using too much pesticide can produce chemical runoff as well. This is especially true if it rains within 24 hours of application of either fertilizer or pesticides. Sweep dry fertilizer and pesticides from sidewalks and driveways back into the yard. See [SP508G], *Assessing Your Lawn and Garden*, for more information.

3. Car and truck wastes

Oil spills on your driveway as well as outdoor spills of antifreeze, brake fluid, and other automotive fluids are easily carried away by rain. If the runoff from your driveway has an oily sheen, you should investigate changing your auto care practices.

Routine maintenance prevents your car from leaking and identifies potential sources of leakage. Use pans, carpet scraps, or matting to catch drips when your car is idle. Keep oily car parts and fluid containers out of the way of stormwater. If you change your own oil, be sure to avoid spills and collect waste oil for recycling. *Never* dump oil, antifreeze, or gasoline down a storm drain, in a ditch, or on the ground. These wastes can end up in a nearby lake or stream, or, possibly, in your drinking water.

Washing your car in the driveway creates runoff problems without the assistance of a rainstorm. Dirty, soapy runoff drains directly into sewers, picking up oil and other pollutants as it goes. If possible, wash your car on the lawn. An even better alternative is to take it to

a commercial car wash or spray booth which sends its dirty water to a wastewater treatment plant.

4. Salt and other de-icers

All road salt and de-icers eventually wash off paved surfaces and end up in soil or water. Salt in high concentrations is harmful to both plant and animal life.

Use as little salt as possible to avoid contaminating natural systems. If you use too much, clean up the excess. Better yet, consider sand or kitty litter as less toxic alternatives.

5. Pet wastes

Droppings from dogs, cats, rabbits, and other animals kept as pets contain nutrients which promote excessive growth of algae if they reach streams and lakes. They are also a source of microorganisms that can cause disease. The risk of stormwater contamination increases if pet wastes are concentrated in animal pen areas or left on sidewalks, streets, or driveways, where runoff occurs. Droppings should be buried in the yard or flushed along with human wastes down the toilet.

6. Yard and garden wastes

If they are left on sidewalks, driveways, or roads, grass clippings and other yard wastes will wash away with the next storm. Although leaves and other plant debris accumulate naturally in streams and lakes, homeowners often contribute excessive amounts, especially in densely populated areas. This produces surface water that is over-fertilized and unsuitable for recreation. Burning is not an environment-friendly alternative. Hydrocarbons and nutrients released by burning leaves contribute to both air and water pollution. Rain washes smoke particles out of the air, and stormwater picks up dust and ashes left on pavement or in ditches.

Avoiding the problem is easy. Sweep clippings back onto the grass, and compost leaves on your property to recycle nutrients for later use.

7. Pavement

Concrete and asphalt roads, driveways, walkways, and patios prevent rainwater from soaking naturally into the ground. When you have a choice, consider alternatives such as gravel or wood-chip walkways. If you need a more solid surface than these provide, consider using **porous pavement** (made from interlocking cement blocks or rubber mats) that allows spaces for rainwater to seep into the ground. If you must pour concrete, keep the paved area as short and narrow as possible.

Aim your gutters' downspouts away from foundations and paved surfaces. If you don't have gutters, plant grass, spread bark mulch, or use gravel under the drip line to prevent erosion and increase the ground's capacity to absorb water. Consider using cisterns or rain barrels to catch rainwater for watering lawns and gardens in dry weather.

8. Bare soil

Areas of bare soil are often found in vegetable and flower gardens, newly seeded lawns, and construction projects. Even on gentle slopes, stormwater can remove large amounts of this soil and deliver it to surface-water bodies.

Stop erosion by planting grass or another ground cover. Mulch gardens or newly seeded areas with straw or wood chips. At construction sites, straw bales, diversion ditches, and silt fences (available commercially) can help slow runoff and trap sediment.

9. Your basement

Stormwater in your basement is a hazard for two reasons. First, it can carry chemical contaminants or disease-bearing organisms into your home. Second, it can carry whatever it picks up in your basement back out again and into the sewer or ground.

Basement windows and doors are common entry points for stormwater, and they should be sealed against leaks. Window wells that extend above ground level can help divert stormwater. Your yard should be sloped away from the house's foundation to prevent water from pooling near the house and leaking into the basement.

10. Your well shaft

If your well is not tightly sealed, pollutants can enter with stormwater. The casing of your well should extend at least six inches above the ground to prevent this. The ground should slope away from the well in all directions, and any low spots should be filled in to keep stormwater from collecting and seeping into the well.

Shine a flashlight down into the well to look for visible cracks. If you can move the well cap by pushing on it, the grout and seal between the well's casing and the borehole may be broken. If you hear water running even when the pump is not on, there may be a crack in the casing. Investigate and correct any potential problems.

11. Yard topography

An essential part of stormwater management is keeping water from leaving your property or slowing its flow as much as possible. Many home lawns are sloped, causing water to run off onto neighboring property or streets.

Add shrubs and flowers to low-lying areas of your lawn to trap water and promote its absorption into the ground. If your yard is hilly, terrace the slopes to slow the flow of runoff and make mowing and gardening easier. If you have a large lot, you may want to consider letting your yard return to its "natural" state of vegetation. Plant a thick buffer strip of natural vegetation between your property and any adjoining bodies of water. For more ideas, contact your local Extension office, Natural Resources Conservation Service (NRCS) office, or Soil Conservation District office.

Make a note:

The table on page 6 of SP508M, *Assessing Your Home-site*, provides a space for you to list all the problem areas in your home that you find while completing *Home•A•Syst*. Take a few minutes now to list any stormwater problems you discovered as you completed *Assessing Your Stormwater Management*. Later, when you complete *Assessing Your Homesite*, you will include these items on the map you draw of your property. Potential items from this factsheet include:

- lawn chemical storage areas
- concentrated pet wastes on the lawn
- grass clippings, fertilizers, or lawn chemicals swept onto paved areas
- areas of bare soil

Remember:

- Store household chemicals out of the way of stormwater.
- Don't use more pesticides or fertilizers than you need.
- Apply pesticides or fertilizers only when rain is not in the immediate forecast.
- Have your car routinely serviced to prevent its leaking fluids onto your driveway.
- Use pans, mats, or carpet scraps to catch drips.
- Never dump oil, antifreeze, or gasoline down a storm drain, into a ditch, or on the ground.
- Take your car to a commercial car wash that delivers its wastewater to a treatment plant.
- Use sand or kitty litter instead of salt as a de-icer.
- Bury or flush pet wastes.
- Sweep grass clippings back onto the lawn.
- Compost yard wastes.
- Avoid paving if at all possible, or consider porous alternatives.
- Manage the layout of your yard to reduce stormwater runoff.
- Protect basement doors and windows from leakage.
- Make sure pollutants cannot enter your well.
- Plant grass or another ground cover on areas of bare soil to prevent erosion.



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Agricultural Extension Service
Billy G. Hicks, Dean

If you want more information . . .

Contact:

- Your local Extension office
- Your local NRCS or Soil Conservation District office

Read:

- *Storm Sewers: The Rivers Beneath Our Feet*. GWQ004.
- *Cleaning Up Stormwater Runoff*. GWQ016.
- *Car Care for Cleaner Water*. GWQ019.

The above publications are available free of charge from the University of Wisconsin-Extension Publications at:

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Download:

- <http://funnelweb.utcc.utk.edu/~utext>
The University of Tennessee Agricultural Extension Service home page.
- <http://www.webdirectory.com>
Comprehensive environmental search engine/bulletin board—a great way to find information about any environmental topic.
- <http://hermes.ecn.purdue.edu:8001/server/water/water.html>
The National Extension Water Quality Database Website, Purdue University.

This *Home•A•Syst* assessment does not cover all potential health or environmental risks related to stormwater. It is meant to be a starting point for identifying and addressing the most apparent risks.

Tennessee *Home•A•Syst* publications have been adapted from the national model by Karin A. Beuerlein and members of the University of Tennessee Agricultural Extension Service Environmental Stewardship Priority Program Team.

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