

THURSTON COUNTY, WASHINGTON

RESIDENTIAL

**STORMWATER POLLUTION
PREVENTION SOURCE CONTROL
MANUAL**

ASSESSOR'S PARCEL NUMBER: _____

ADDRESS: _____

DATE: _____

Table of Contents

INTRODUCTION 1

ABOUT THIS MANUAL 1

BEST MANAGEMENT PRACTICES ... WHAT ARE THEY?..... 1

WHAT’S IN THIS MANUAL?..... 2

GENERAL PRINCIPLES OF POLLUTION PREVENTION..... 3

BEST MANAGEMENT PRACTICES FOR SINGLE FAMILY RESIDENCES..... 7

1 AUTOMOBILE WASHING 8

2 AUTOMOBILE MAINTENANCE..... 9

3 STORAGE OF SOLID WASTES AND FOOD WASTES..... 11

4 COMPOSTING 12

5 YARD MAINTENANCE AND GARDENING 14

6 SWIMMING POOL AND SPA CLEANING AND MAINTENANCE..... 16

7 HOUSEHOLD HAZARDOUS MATERIAL USE, STORAGE AND DISPOSAL 17

8 PET WASTE MANAGEMENT..... 20

9 ON-SITE SEWAGE MAINTENANCE AND OPERATION..... 22

10 ACTIVITIES IN WETLANDS AND WETLANDS BUFFERS 24

11 ILLICIT DISCHARGE DETECTION AND ELIMINATION 25

Introduction

ABOUT THIS MANUAL

Thurston County's water resources – its streams, lakes, wetlands, groundwater, and Puget Sound – play an important role in the quality of life we enjoy. They provide us with recreation and drinking water, support tourism and salmon and are used by industry. These waters, however, are vulnerable to pollution from a wide variety of human activities.

This manual applies to those residential properties and activities in unincorporated Thurston County that have the potential to contribute pollutants to stormwater runoff or directly to receiving waters. Stormwater runoff may seep into the ground, drain to a storm drain or a drainage ditch, or flow over the ground. Regardless of the way runoff leaves your site, it ends up in a stream river, lake, wetland, groundwater or Puget Sound.

Contaminated stormwater can negatively affect every water body it enters. Therefore, this manual provides detailed information on what you can do to reduce the contamination of surface water, groundwater, and stormwater from your property.

Many of our water pollution problems are due in large part to pollutants washed off the land by storms. The quality of “stormwater” from residential properties is an increasing concern nationwide. Many people believe that stormwater is “clean” and does not harm water quality. This perception is understandable since the amount of pollution from any one place is not usually significant by itself. But when all these small amounts are combined, they can cause significant pollution problems.

The federal Clean Water Act mandates that cities and counties control the quality of stormwater runoff. One way to achieve this is to implement pollution prevention measures on individual properties. By following the “Best Management Practices” described in this manual you can do your part to protect our streams, groundwater, and Puget Sound.

BEST MANAGEMENT PRACTICES ... WHAT ARE THEY?

Best Management Practices (BMPs) are a set of activities designed to reduce stormwater pollution. BMPs are separated into two broad categories: *source control* and *treatment*.

Source Control BMPs

Source control BMPs prevent contaminants from entering stormwater runoff by controlling them at the source. Some source control BMPs are operational, such as checking regularly for leaks and drips from equipment and vehicles, covering materials that have potential to add pollutants to surface water if rainwater comes in contact with the materials, cleaning up pet waste, and minimizing use of pesticides, fertilizers, and insecticides. Other source control BMPs require use of a structure to prevent rainwater

from contacting materials that will contaminate stormwater runoff such as provide a covered area or berm to prevent clean stormwater from entering work or storage areas.

Source control BMPs prevent contaminants from entering stormwater by controlling them at the source.

Treatment BMPs

In contrast, *treatments BMPs* are structures that treat stormwater to remove contaminants. Treatment BMPs typically require elaborate planning, design and construction. A stormwater pond for your subdivision is an example of a *treatment BMP*. No treatment BMP is capable of removing 100 percent of the contaminants in stormwater and the less contaminants in the stormwater prior to the treatment BMP, the more effective the BMP is.

Also remember that, just because there is a stormwater collection system where you live, it does not necessarily mean that the stormwater is treated. Many developments were created prior to requirements to treat stormwater. The runoff from your property may go directly or indirectly to a stream or wetland without any treatment.

Keep in mind that runoff from your property may go directly or indirectly to a stream or wetland without any treatment.

This manual will focus on *source control* BMPs applicable to the routine practices of most owners of a single family residence..

WHAT'S IN THIS MANUAL?

This manual has been developed for the owners of single family residences. If you are trying to get a building permit to construct a new home you may be required to submit a copy of this manual, or its equivalent as part of your permit application and then record it with the Thurston County Auditor's office prior to receiving final approval of your project.

The manual is divided into three sections as follows:

- **Introduction**
- **General Principles of Pollution Prevention**
- **Best Management Practices for Single-Family Residences**

The general principles and best management practices described are based on the requirements of the *Thurston County Drainage Design and Erosion Control Manual*, Volume IV – *Source Control*.

General Principles of Pollution Prevention

There are 15 general principles of pollution prevention that every homeowner should consider.

This section describes simple pollution prevention principles that every homeowner should consider. Most of these are common sense, “housekeeping” types of solutions. With collective action by individuals throughout the county in implementing these principles, the improvement in water quality can be substantial. There are 15 general principles of pollution prevention.

1. Avoid the activity or reduce its occurrence

Avoid potentially polluting activity or do it less frequently, especially if it takes place outdoors. Apply lawn care chemicals following directions and only as needed. Do not apply herbicides right before it rains.

2. Move the activity indoors

Move a potentially polluting activity indoors out of the weather. This prevents runoff contamination and provides more control for a cleanup if a spill occurs. For example unload and store chemicals inside a garage area or shed instead of outside. Be safe and ensure any storage area is well ventilated and required building and fire code requirements are met.

3. Cleanup spills quickly

Promptly contain and cleanup solid and liquid pollutant leaks and spills on any exposed soil, vegetation, or paved area. Use readily available absorbents such as kitty litter to absorb spills and then sweep up the material and dispose of it in the garbage. Promptly repair or replace leaking connections, pipes, hoses, valves, etc. on vehicles and equipment you own.

4. Use less material

Don't buy or use more material than you really need. This not only helps keep potential disposal, storage and pollution problems to a minimum, but will probably save you money too.

5. Use the least toxic materials available

Investigate the use of materials that are less toxic. For example, replace a caustic-type detergent or solvent with a more environmentally friendly product. Even if you do switch to a biodegradable product, remember that only uncontaminated water is allowed to enter the stormwater drainage system.

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6. Create and maintain vegetated areas near activity locations

Vegetation can filter pollutants out of stormwater. Route stormwater from parking and work areas through vegetated areas. Remember that wastewater other than stormwater runoff, such as wash water, must be discharged to a wastewater collection system (sewer or septic system), and may not be discharged to a storm drainage system.

7. Locate activities as far as possible from surface drainage paths

Activities located as far as possible from known drainage paths such as ditches, streams, other water bodies, and storm drains will be less likely to pollute, since it will take longer for material to reach the drainage features. This give more time to react to a spill, or if it is a “housekeeping” issue, may protect the local waters long enough for you to cleanup the area around the activity. Don’t forget that groundwater protection is important throughout Thurston County, no matter where the activity is located, so the actions you take on a day-to-day basis area always important, even in dry weather.

Don’t forget that groundwater protection is important throughout Thurston County.

8. Maintain stormwater drainage systems

Pollutants can concentrate over time in storm drainage facilities such as catch basins, ditches, and storm drains. When a large storm event occurs, turbulent runoff can mobilize these pollutants and carry them to receiving waters. By performing regular maintenance on stormwater facilities located on your property you can prevent this from occurring. Also repair or replace cracked or otherwise damaged pavement in parking areas and any other drainage areas that are subject to pollutant material leaks or spills.

9. Reduce, reuse, and recycle as much as possible

Look for ways to recycle instead of just disposing. This saves money and keeps hazardous and non-hazardous materials out of landfills. Contact the Thurston County Solid Waste Division at (360) 357-2491 for more information on recycling opportunities at the Thurston County Waste and Recover Center.

10. Be an advocate for stormwater pollution prevention

Help friends, neighbors, and business associates find ways to reduce stormwater pollution in their activities. Most people want clean water and do not pollute intentionally. Share your ideas and the BMPs in this manual to get them thinking about how their everyday activities affect water quality.

11. Report problems

We all must do our part to protect water, fish, wildlife, and our own health by implementing proper BMPs, and reporting water quality problems that we observe. In Thurston County, call the Water Resources Division of the Resource Stewardship Department at (360) 754-4681 to report dumping to storm drains or ditches.

12. Provide oversight and training

Talk to the members of your family, or if you are a landlord talk to your tenants, to ensure they understand the pollution prevention source control measures and BMPs described in this manual. If you are a landlord monitor the activities of your tenants to ensure that they are carrying out the principles of this manual.

13. Dust control

Sweep paved parking and storage areas regularly to collect and dispose of dust and debris that could contaminate stormwater. Do not hose down pollutants from any area to the ground, storm drain, conveyance ditch or any receiving water (stream, wetland, lake, etc.). Do not use used oils or other petroleum products for dust control. Volumes of water used for light watering for dust control of dirt driveways or gravel roads should be conducted to prevent any runoff of stormwater from the surface.

Do not hose down pollutants from any area to the ground, storm drain, conveyance ditch or any receiving water (stream, wetland, lake, etc.)

14. Eliminate illicit connections

A common problem with the stormwater drainage system for most communities is the existence of illicit connections of wastewater to the storm drainage system. Many businesses and residences have internal building drains, sump overflows, sump pumps, garage and outdoor sinks and showers, and even sanitary sewer and septic system pipes that were inadvertently connected to the nearby storm drainage system in the past.

Examine the plumbing system for your home to determine if illicit connections exist. Any time it is found that toilets, sinks, appliances, showers and bathtubs, floor drains, industrial process waters, and/or other indoor activities are connected to the stormwater drainage system; these connections must be immediately rerouted to the sanitary or septic system, holding tanks, or process treatment system. For assistance in methods to detect and eliminate illicit connections contact the Water Resources Division at (360) 754-4681.

15. Dispose of waste properly

Every business and residence in Thurston County must dispose of solid and liquid wastes and contaminated stormwater properly. There are generally four options for disposal depending on the type of materials. These options include:

- Sanitary sewer and septic systems.
- Recycling facilities
- Municipal solid waste disposal facilities
- Hazardous waste treatment, storage and disposal facilities.

Every business and residence in Thurston County must dispose of solid and liquid wastes and contaminated stormwater properly.

Best Management Practices for Single Family Residences

Stormwater goes directly to our groundwater, lakes, streams and to Puget Sound. It does not go to the wastewater treatment plant.

The actions we take each day in and around our homes have a profound effect on surface water quality and fish habitat. Stormwater goes directly to our groundwater, lakes, streams, and to Puget Sound. It does not go to the wastewater treatment plant. Any pollutants that get into the stormwater go directly to surface or groundwater. Small amounts of pollution from many different sources can significantly affect our waterways. Stormwater BMPs discussed in this section are practical ways to keep stormwater from becoming polluted in the first place. It is recommended that all residents in Thurston County use these BMPs. **Please note that some of these procedures are required by various state, or county laws, and are noted as required BMPs.**

This section provides a general list of activities typically conducted by home owners and describes the BMPs that may be required or recommended to prevent stormwater pollution. The list includes brief information on applicability. More detailed information for the BMPs described in this section can be found in the Thurston County Drainage Design and Erosion Control Manual, Volume IV or by contacting the Thurston County Water Resources Division of the Resource Stewardship Department at (360) 754-4681. BMPs for the following activities are described in this section:

- 1. Automobile Washing*
- 2. Automobile Maintenance*
- 3. Storage of Solid Wastes and Food Wastes*
- 4. Composting*
- 5. Yard Maintenance and Gardening*
- 6. Swimming Pool and Spa Cleaning and Maintenance*
- 7. Household Hazardous Material use, Storage and Disposal*
- 8. Pet Waste Management*
- 9. On-Site Sewage Maintenance and Operation*
- 10. Activities in Wetlands and Wetlands Buffers*
- 11. Illicit Discharge Detection and Elimination*

1

Automobile Washing

Many residents wash their cars in the driveway or on the street. Wash waters typically flow to a storm drain or ditch, which discharges stormwater directly to the underlying groundwater or to the nearest stream, lake, or Puget Sound. Soaps and detergents, even the biodegradable ones, can have immediate and long-term effects on aquatic life in water bodies. The grime washed off the car also contains a variety of pollutants that can harm fish and wildlife.

Suggested BMPs

At Home:

- Wash your car directly over your lawn or make sure the wash water drains to a vegetated area. This allows the water and soap to soak into the ground instead of running off into a local water body.
- Ideally, no soaps or detergents should be used, but if you do use one, select one without phosphates.
- Commercial products are available that allow you to clean a vehicle without water. These were developed for areas where water is scarce, so a water saving benefit is realized, as well as reduced pollution.
- Use a hose nozzle with a shut-off valve to save water.
- Do not wash your car if rain is expected.
- Pour the bucket of soapy, dirty wash water down your sink. This way the water doesn't pollute surface water. Instead, it's treated at the wastewater treatment plant or by your septic system.

Away from Home:

- Consider not washing your car at home. Take it to a commercial car wash that has a recycle system and discharges wastewater to the sanitary sewer for treatment.

2

Automobile Maintenance

Many of us are “weekend mechanics”. We enjoy the cost savings of changing our own oil and antifreeze, topping off the battery with water, and generally making our car perform its’ best. There is a lot of potential for stormwater pollution associated with these activities; however, the following BMPs will help you minimize pollution while servicing your car, truck, van, or RV.

Required BMPs

- Recycle all oils, antifreeze, solvents, and batteries. Many local car parts dealers and gas stations accept used oil and oil filters. The Household Hazardous Waste facilities at the Thurston County Waste and Recovery Center accept oil, oil filters, antifreeze, and solvents.
- Never dump new or used automotive fluids or solvents on the ground, in a storm drain or street gutter, or in a water body. Eventually, it will make its way to local surface waters or groundwater, including the water we drink.
- Do not mix wastes. The chlorinated solvents in some carburetor cleaners can contaminate a huge tank of used oil, rendering it unsuitable for recycling. Always keep your wastes in separate containers which are properly labeled and store them out of the weather.

Never dump new or used automotive fluids or solvents on the ground, in a storm drain or street gutter...

Suggested BMPs

- Fix all leaks, to keep the leaky material off streets and out of surface water.
- To dispose of oil filters, punch a hole in the top and let drain for 24 hours. This is where a large funnel in the top of your oil storage container will come in handy. After draining, wrap in 2 layers of plastic and dispose of in your regular garbage or recycle by taking it to the Thurston County Waste and Waste and Recovery Center. Call the Thurston County Department of Public Works at (360) 754-4581 for up-to-date information on the appropriate disposal of consumer products.
- Use care in draining and collecting antifreeze to prevent accidental spills. Spilled antifreeze tastes sweet and can be deadly to animals that ingest it.
- Perform your service activities on concrete or asphalt or over a plastic tarpaulin to make spill cleanup easier. Keep a bag of kitty litter on hand to absorb spills. If there is a spill, sprinkle a good layer on the spill, let it absorb for a little while and then sweep it up. Place the

contaminated litter in a plastic bag, tie it up, and dispose of it in your regular garbage. Take care not to leave kitty litter out in the rain; it will form a sticky goop that is hard to clean up.

- If you are doing body work outside, be sure to use a tarpaulin to catch material resulting from grinding, sanding, and painting. Dispose of this waste by double bagging in plastic and placing in your garbage.

Spilled antifreeze tastes sweet and can be deadly to animals that ingest it.

3

Storage of Solid Wastes and Food Wastes

Improper storage of food and solid waste at residences can lead not only to water pollution problems, but problems with neighborhood pets and vermin as well. Following the BMPs listed below can help keep your property a clean and healthy place to live.

Suggested BMPs

- Recycle as much as you can. Most Thurston County residents have access to curbside pickup for yard waste and recyclable materials. Also, look under “recycling” in the phone book for firms which take other recyclables.
- All waste containers kept outside should have lids. If your lid is damaged, please call your local solid waste hauler to get the lid repaired or replaced. The Thurston County web site lists haulers for your neighborhood: www.co.thurston.wa.us/wwm/
- Leaking waste containers should be replaced. If your container is damaged, please call your local solid waste hauler.
- Store waste containers under cover if possible, or on grassy areas.
- Inspect the storage area regularly to pick up loose scraps of material and dispose of them properly.
- Purchase products which have the least amount of packaging materials.
- Compost biodegradable materials such as grass clippings and vegetable scraps instead of throwing them away. Your flowerbeds will love the finished compost, and you’ll be helping to conserve limited landfill space. Call Thurston County Department of Public Works at (360) 754-4581 for more information on composting or information on yard waste collections. See the section on composting for BMPs relating to that activity.
- A fun alternative to traditional composting is worm composting. You can let worms do all the work for you by keeping a small vermiculture box just outside your kitchen. For more information on getting started with worms, call the number listed above.

4

Composting

Composting is an earth-friendly activity as long as some common sense rules outlined below are followed. If you choose to compost, the following BMPs should be utilized. More information can be found on-line at: www.co.thurston.wa.us/wwm/

Suggested BMPs

- Compost piles must be located on an unpaved area where runoff can soak into the ground or be filtered by grass and other vegetation. Compost piles should be located in an area of your yard not prone to water ponding during storms, and should be kept well away from wetlands, streams, lakes, and other drainage paths.
- Compost piles must be maintained and turned over regularly to work properly. Large piles of unattended compost may create odor and vermin problems.
- Avoid putting hazardous, inorganic, plastics or metal waste in the pile.
- Cover the compost pile (See Figure) for two reasons:
 1. To keep stormwater from washing nutrients into waterways.
 2. To keep excess water from cooling the pile—this slows down the rate of decomposition.



(photo courtesy of Green Culture)

Figure: Covered Compost Bin.

- Build bins of wood, chicken wire, or fencing material to contain compost so it can't be washed away. You can purchase reduced price compost bins through Thurston County's web-site or find information on building your own bins. Call Thurston County Department of Public Works at (360) 754-4581 to get free composter designs and materials lists or see: www.co.thurston.wa.us/www/.
- Building a small earthen dike around your compost pile is an effective means of preventing nutrient-rich compost drainage from reaching stormwater paths.

Compost piles should be located in an area of your yard not prone to water ponding during storms, and should be kept well away from wetlands, streams, lakes and other drainage paths.

5

Yard Maintenance and Gardening

This section deals with the normal yard maintenance activities we all perform at our homes. Over watering, over fertilizing, improper herbicide application, and improper disposal of trimmings and clippings can all contribute to serious water pollution problems. Following the BMPs listed below will help alleviate pollutant runoff.

Required BMPs

- Follow the manufacturer's directions exactly for mixing and applying herbicides, fungicides, and pesticides, and use them sparingly. Never apply when it is windy or when rain is expected. Never apply over water, within 100 feet of a well-head, or adjacent to streams, wetlands, or other water bodies. Triple-rinse empty containers, using the rinsate for mixing your next batch of spray, and then double-bag and dispose of the empty container in your regular garbage. Never dispose of grass clippings or other vegetation in or near storm drains, streams, lakes, or Puget Sound.

Suggested BMPs

- Use natural, organic soil amendments when possible. The excellent soil conditioning properties of the organic matter aid water retention in lighter soils and help to break up and aerate heavier soils, so roots can grow better and less watering is needed. It contains both readily available and long term nitrogen and other nutrients commonly lacking in Northwest soils. The slow release of nitrogen better matches the needs of plants. Thus, there is much less potential for nitrates to leach into surface or groundwater due both to less “excess nitrogen” and less water use. Better vegetative growth can also reduce erosion and runoff.

Use natural, organic soil amendments when possible...The slow release of nitrogen better matches the needs of plants.

- Follow manufacturer's directions when applying fertilizers. More is not better, either for your lawn or for local water bodies. Never apply fertilizers over water or adjacent to ditches, streams, or other water bodies. Remember that organic fertilizers have a slow release of nitrogen, and less potential to pollute than synthetic fertilizers.
- Save water and prevent pollution problems by watering your lawn sensibly. Lawns and gardens typically need the equivalent of 1 inch of rainfall per week. You can check on how you're doing by putting a wide mouth jar out where you're sprinkling, and measure the water with a small plastic ruler. Overwatering to the point of runoff can carry polluting nutrients to the nearest water body.

Lawns and gardens typically need the equivalent of 1 inch of rainfall per week.... Put a wide mouth jar out when sprinkler, and measure the water with a small plastic ruler.

- Consider planting a vegetated buffer zone adjacent to streams or other water bodies on your property. Call the Thurston County Conservation District at (360) 754-3588 for advice and assistance in developing a planting plan. The Stream Team program (360) 754-4681 at the County may even be able to help you plant it!
- Reduce the need for pesticides and fertilizers on lawns by improving the health of the soil. Aerating, thatching, and topdressing with compost will improve soil health and help desired grasses compete with weeds and moss.
- Make sure all fertilizers and pesticides are stored in a covered location. Rain can wash the labels off of bottles and convert 50 pounds of boxed fertilizer into either a solid lump or a river of nutrients.
- Use a mulching mower and mow higher to improve soil/grass health and reduce or eliminate pesticide use.
- Compost all yard clippings, or use them as mulch to save water and keep down weeds in your garden. See Composting section for more information.

Aerating, thatching, and topdressing with compost will improve soil health and help desired grasses compete with weeds and moss.

- Practice organic gardening and virtually eliminate the need to use pesticides and fertilizers. Contact Thurston County Cooperative Extension at (360) 786-5445 for information and classes on earth-friendly gardening.
- Pull weeds instead of spraying and get some healthy exercise, too. If you must spray, use the least toxic formulations that will get the job done. The Master Gardener program listed above can help advise you on which spray to use.
- Work fertilizers into the soil instead of letting them lie on the ground surface exposed to the next rain storm.
- Plant native vegetation which is suited to Northwest conditions, they require less water and little to no fertilizers and pesticides.
- Contact your local waste disposal company for curbside pickup and recycling of yard waste.

6

Swimming Pool and Spa Cleaning and Maintenance

Despite the fact that we immerse ourselves in it, the water from pools and spas is far from chemically clean. Nutrients, pH, and chlorine can adversely affect fish and wildlife in water bodies. Following these BMPs will ensure the cleanliness of your pool and the environment.

Required BMPs

- Pool and spa water must be dechlorinated to 0.1 mg/L if it is to be emptied into a ditch or to the stormwater drainage system. Contact your pool chemical supplier to obtain the neutralizing chemicals you will need. The rate of flow into the ditch or drainage system must be regulated so that it does not cause problems such as erosion, surcharging, or flooding. Water discharged to the ground or a lawn must not cross property lines and must not produce runoff.
- If pool and spa water cannot be dechlorinated, it must be discharged to the sanitary sewer. Prior to draining, your local sewer provider must be notified to ensure they are aware of the volume of discharge and the potential effects of chlorine levels. A pool service company can help you determine the frequency of cleaning and backwash of filters.
- Diatomaceous earth used in pool filters cannot be disposed of in surface waters, on the ground, or into stormwater drainage systems or septic systems. Dry it out as much as possible, bag it in plastic, and dispose of at the landfill.

Suggested BMPs

Hire a professional pool service company to collect all pool water for proper disposal. Make sure to ask them where they will dispose of it and the kind of permits they hold to do so.

7

Household Hazardous Material use, Storage and Disposal

Once we really start looking around our houses, the amount of hazardous materials we have on site is a real eye-opener. Oil-based paints and stains, paint thinner, gasoline, charcoal starter fluid, cleaners, waxes, pesticides, fingernail polish remover, and wood preservatives are just a few hazardous materials that most of us have around the house.

When products such as these are dumped on the ground or in a storm drain, they can be washed directly to receiving waters where they can harm fish and wildlife. They can also infiltrate into the ground and contaminate drinking water supplies. The same problem can occur if they are disposed of with your regular garbage; the containers can leak at the landfill and contaminate groundwater. The same type of contamination can also occur if hazardous products are poured down a sink or toilet into a septic system. Don't pour them down the drain if you're on municipal sewers, either. Many compounds can “pass through” the wastewater treatment plant without treatment and contaminate receiving waters, or they can harm the biological process used at the treatment plant, reducing overall treatment efficiency.

With such a diversity of hazardous products present in all homes in Thurston County, a large potential for serious environmental harm exists if improper methods of storage, usage, and disposal are employed. Using the following BMPs will help keep these materials out of our soils, sediments, and waters.

Don't pour them down the drain... Many compounds can “pass through” the wastewater treatment plant without treatment and contaminate receiving waters.

Required BMPs

- Hazardous Materials must be used in accordance with the manufacturer recommendation or guidelines as shown on the label.
- Always store hazardous materials in properly labeled containers, never in food or beverage containers which could be misinterpreted by a child as something to eat or drink.
- Dispose of hazardous materials and their containers properly. Never dump products labeled as *poisonous, corrosive, caustic, flammable, inflammable, volatile, explosive danger, warning, caution, or dangerous* outdoors, in a storm drain, or into sinks, toilets or drains. Call the Thurston County Department of Public Works at (360) 754-4581 for information on disposal methods, collection events, and alternative products. Household hazardous wastes from Thurston County residents and non-residents are accepted at the HazoHouse, at the

Thurston County Waste and Recovery Center in Hawks Prairie at 2418 Hogum Bay Road NE.

Household hazardous wastes from Thurston County residents and non-residents are accepted at the HazoHouse, at the Thurston County Waste and Recovery Center in Hawks Prairie...

Suggested BMPs

- Check hazardous material containers frequently for signs of leakage. If a container is rusty and has the potential of leaking soon, place it in a secondary container before the leak occurs and prevent a cleanup problem.
- Hazardous materials should be stored out of the reach of children.
- Store hazardous materials containers under cover and off the ground. Keep them out of the weather to avoid rusting, freezing, cracking, labels being washed off, etc.
- Keep appropriate spill cleanup materials on hand. Kitty litter is good for many oil-based spills.
- Ground cloths and drip pans must be used under any work outdoors which involves hazardous materials such as oil-based paints, stains, rust removers, masonry cleaners, and others bearing label warnings as outlined above (See Figure).
- Latex paints are not a hazardous waste, but are not accepted in liquid form at the landfill. To dispose of, leave uncovered in a protected place until dry, then place in the garbage. If your can is at least half full, you can take it to the HazoHouse to be placed in Swap Shop area. If you wish to dry waste paint quickly, mix kitty litter or sawdust in the can to absorb the paint. Once paint is dry, leave the lid off when you place it in the garbage so your garbage collector can see that it is no longer liquid.
- Use less toxic products whenever possible. Ecology maintains a hotline at 1-800-RECYCLE, or see information online at <https://fortress.wa.gov/ecy/recycle/>
- If an activity involving the use of a hazardous material can be moved indoors out of the weather, then do so. Make sure you can provide proper ventilation, however.



Drip Pan for Capturing Spills and Drips During Engine Repair and Maintenance.

- Follow manufacturers' directions in the use of all materials. Over-application of yard chemicals, for instance, can result in the washing of these compounds into receiving water bodies. Never apply pesticides when rain is expected.
- When hazardous materials are in use, place the container inside a tub or bucket to minimize spills and store materials above the local base flood elevation (BFE).

Latex paints are not a hazardous waste... leave uncovered in a protected place until dry, then place in the garbage.

8

Pet Waste Management

Pet waste that washes into lakes, streams or Puget Sound begins to decay, using up oxygen and releasing ammonia. Low oxygen levels and ammonia combined with warm water can kill fish. Pet waste also contains nutrients that encourage weed and algae growth in waters we use for swimming, boating and fishing. Most importantly, in many urban areas, pet waste is the largest source of bacterial loading to streams. It can carry diseases that could make water unsafe for contact and lead to beach closures or affect shellfish harvest. These include:

- Campylobacteriosis—bacterial infection
- Salmonellosis—bacterial infection
- Toxocariasis—roundworm infection
- Toxoplasmosis—protozoan parasite infection
- Giardiasis—protozoan parasite infection
- Fecal Coliform—bacteria in feces, indicates contamination
- *E. coli*—bacteria in feces, may cause disease.

Pet waste is the largest source of bacterial loading in streams. It can carry diseases that could make water unsafe for contact and lead to beach closures or affect shellfish harvest.

Cleaning up after your pet can be as simple as taking a plastic bag or pooper scooper along on your next walk. Then choose one of the following:

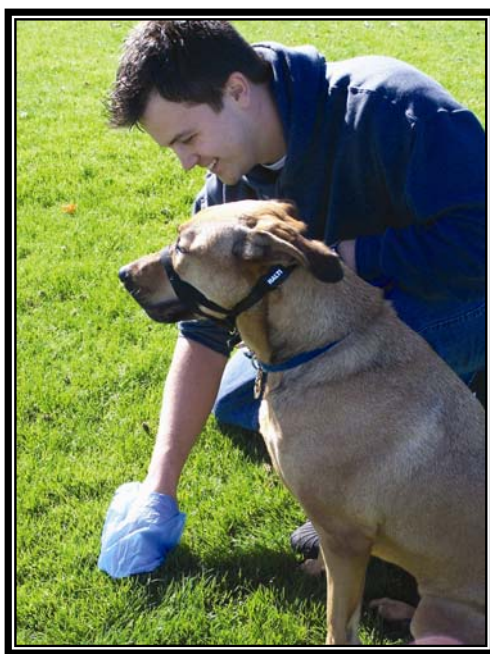
Suggested BMPs

- **Bag it** – Put waste in a securely closed bag and deposit it in the trash. Do not put it in your yard waste container because pet waste may carry diseases, and yard waste treatment may not kill disease organisms.
- **Bury it** – Bury waste at least 1 foot deep and cover with soil in your yard or garden (not in food-growing areas).
- **Flush it** – Only flush pet wastes if your home is served by a sanitary sewer which goes to a sewage treatment plant. Water from your toilet goes through a treatment process that removes pollutants before it is discharged into the environment.

To prevent plumbing problems, don't flush debris or cat litter. Cat feces may be flushed, but used litter should be put in a securely closed bag in the trash. Septic systems are not designed to accommodate the high pollutant load of pet waste. To prevent premature failure or excessive maintenance costs do not flush pet wastes to your septic system.

To prevent premature failure or excessive maintenance costs do not flush pet wastes to your septic system.

- **Compost it** – waste from small animals **other than dogs and cats** (rabbits, rodents, etc.), can be put in your compost bin.



9

On-Site Sewage Maintenance and Operation

Thurston County is responsible for ensuring that stormwater discharged from stormwater management systems we operate does not harm or impair the use of the receiving waters (creeks, rivers, lakes, groundwater or Puget Sound). Sample tests of stormwater discharges and receiving water occasionally indicate high levels of fecal coliform bacteria.

One potential source of bacteria in surface water is malfunctioning onsite sewage systems (septic systems). Septic tank failures have been documented on private property in Thurston County.

Septic systems vary widely in their design and complexity. Owners of septic systems should contact the Thurston County Department of Public Health and Social Services (Environmental Health Division) at (360) 754-4111 to request an as-built of their system. As-built requests are also available at the Development Review counter at 2000 Lakeridge Drive SW, Olympia. More information is available at: <www.co.thurston.wa.us/permitting>.

In its simplest design the septic tank is the first stage of a private sewage disposal system. The septic tank is a water-tight tank below ground that is usually made of concrete but may be fiberglass, plastic or steel. Septic tanks have one or two access ports for inspection and maintenance which are usually buried a few inches below the ground.

The tank receives household wastewater through an inlet pipe at one end, settles out larger material to the bottom, breaks down waste material with bacteria present in the tank and delivers the partially treated wastewater out another pipe on the opposite end of the tank to the disposal field.

The disposal field is the second stage of the private sewage disposal system and completes the final breakdown of wastewater with organisms in the soil.

The disposal field consists of narrow trenches filled with gravel and perforated pipes that distribute the wastewater to the field. With proper maintenance, a well designed system can last a long time; however, disposal fields will clog if forced to handle large particles that should settle out in the bottom of the septic tank.

One potential source of bacteria in surface water is malfunctioning onsite sewage systems.

Required BMPs

Owners of septic systems must follow all of the requirements of the Thurston County Department of Public Health and Social Services, Environmental Health Division. They can be contacted at Thurston County Health Department at (360) 754-3355 extension 6518 for further information and specific requirements applicable to your system.

Suggested BMPs

- **Regular Inspection and Maintenance**
Septic tanks require regular inspection and maintenance. Inspections should be done to measure accumulated sludge every 3 to 5 years. Pumping frequency can vary depending on tank size, family size and garbage disposal use. Failure to remove sludge periodically will result in reduced settling capacity and eventual overloading of the disposal field, which can be difficult and expensive to remedy. Maintenance is required on complex systems, those serving more than one single family residence, and commercial establishments.
- **Eliminate or Restrict Garbage Disposal Use**
Eliminating or restricting garbage disposals can significantly reduce the loading of solids to the septic tank thus reducing the pumping frequency.
- **Reduce and Spread Water Use Out Over the Day**
Septic tanks are limited in their ability to handle rapid large increases in the amount of water discharged into them. Excess wastewater flow can cause turbulence in the tank flushing accumulated solids into the disposal field. Over time this will impair the ability of the disposal field to function. Limit water using appliances to one at a time. Do one load of clothes a day rather than several in one day. Practice water conservation at home.
- **Chemical Use**
Septic systems are to be used for the disposal of household wastewater only. Never dispose of excess or unwanted chemicals into the septic system. Occasional use of household cleaners in accordance with the manufacturers' recommendations should not harm your septic system. There is little evidence that products advertised for use as septic system cleaners and substitutes for pumping actually work as advertised.

For additional information on proper operation of your septic system or to report a failing septic system in your neighborhood, contact Thurston County Environmental Health at (360) 786-5490 or at: <www.co.thurston.wa.us/health/ehoss/index.html>.

10

Activities in Wetlands and Wetlands Buffers

Wetlands and associated buffers are vegetated ecosystems through which water passes. These areas usually have a high water table and are often subject to periodic flooding. Wetlands can be very effective in removing sediments, nutrients and other pollutants from stormwater.

Wetlands can be very effective in removing sediments, nutrients and other pollutants from stormwater.

Maintaining wetlands and associated buffers helps to slow stormwater runoff, trap sediments and other pollutants and reduce the volume of runoff by allowing infiltration to occur. Reducing the velocity of runoff reduces soil erosion and increases contact time with soil and vegetation. Increasing contact of stormwater with soils and vegetation in a wetland or riparian area can be effective in removing sediments, nutrients and other pollutants from stormwater runoff.

Buffer areas are important to both the wetland and the upland areas as habitat for aquatic wetland-dependant wildlife and as buffers during extreme weather events. Other functions of buffer areas that contribute to water quality include shading, flood attenuation and shoreline stabilization.

Persons responsible for maintenance of wetland areas are encouraged to call Thurston County Development Services at (360)786-5490 prior to performing work in wetlands or their buffers.

Required BMPs

- Removal by hand of manmade litter and control of noxious weeds that are included on the state noxious weed list (Washington Administrative Code [WAC] 16-750) or invasive plant species as identified by Thurston County. Control may be conducted by clipping, pulling, over-shading with native tree and shrub species, or non-mechanized digging. Alternative methods such as mechanical excavation, barrier installation, or herbicide use may be allowed if acceptable to the Department of Resource Stewardship and acquisition of any necessary permits, per Thurston County Code Title 17 *Environment*, 17.15 - *Critical Areas*.
- Check with Thurston County Development Services and Planning on guidelines for vegetation and hazardous tree removal in critical areas.

Suggested BMPs

- To prevent possible contamination limit fertilizer and herbicide use around wetlands and their buffers.
- Limit access to wetlands and their buffers. To avoid compaction do not establish trails within the wetland areas

11

Illicit Discharge Detection and Elimination

A common problem with Thurston County's stormwater drainage system is illegal hook-ups to the system. Many businesses and residences hooked internal building drains, sump overflows, and even sanitary sewer and septic system pipes to the storm drain in the past, allowing a variety of pollutants to flow directly to receiving waters instead of the sanitary sewer or septic system. Frequently, these connections are unknown to the current owner, and do not appear on any plans for the site. Because of the pollution potential these connections represent, the Environmental Protection Agency, under the mandate of the NPDES stormwater permits, has made elimination of illegal connections a top priority.

All businesses and residences in Thurston County must examine their plumbing systems to determine if illegal connections exist. We recommend starting with site plans, to better understand what piping systems were initially installed, making piping that does not appear on the plan a priority for investigation. Wherever toilets, sinks, appliances, showers and bathtubs, floor drains, or other indoor activities are connected to the stormwater drainage system, immediately reroute them to the sanitary or septic system or holding tanks.

All businesses and residences in Thurston County must examine their plumbing systems to determine if illegal connections exist.

If sanitary facilities (such as toilets) are connected to the stormwater drainage system, you must obtain a permit from your local sewer utility and reroute them to the sanitary sewer. If sanitary service is not available, contact the Thurston County Public Health and Social Services Department at (360) 786-5581 for septic permits.

Dye Testing

Dye testing with a non-toxic dye is one way to determine where a pipe or structure drains if not obvious by observations or on plans. The dye is put into the structure and flushed with some water. Observations are then made at ends-of-pipes, drainage ditches, catch basins, and manholes to look for the color coming through. Contact Thurston County Department of Resource Stewardship, Water Resources Unit (360) 754-4681 if you need assistance in locating structures adjacent to your property.

Smoke Testing

Smoke testing can also help detect illegal connections and is best done by qualified personnel. To conduct smoke testing, shut off all indoor discharges, place a smoke bomb or other smoke-generating device in a storm drain manhole, and force air in after it. Station personnel at each suspect drain location to observe if smoke is coming out. Identify smoking drains for future rerouting.

Plugging or Rerouting Illicit Discharges

Drains which are found to connect to the stormwater drainage system must either be permanently plugged or disconnected and rerouted as soon as possible. Plug unused drains with concrete or similar permanent materials. If a drain pipe is to be rerouted and a sanitary sewer services the property, then the local sewer provider must be contacted. It is the responsibility of the property owner to follow through on rerouting illicit storm drainage connections to the sanitary sewer.

It is the responsibility of the property owner to follow through on rerouting illicit storm drainage connections to the sanitary sewer.

If the property is not served by a sanitary sewer, alternate measures will be necessary. If the discharge is simply domestic waste, a septic system may be feasible. If it is necessary to install a septic system, the proper permits will need to be obtained from the Thurston County Public Health and Social Services Department at (360) 786-5581. If the discharge is anything other than domestic waste, then a holding tank or onsite treatment will be necessary. Contact LOTT Alliance Industrial Pretreatment Program at (360) 528-5708 or your local sewer service provider for specific directions for installation and disposal.